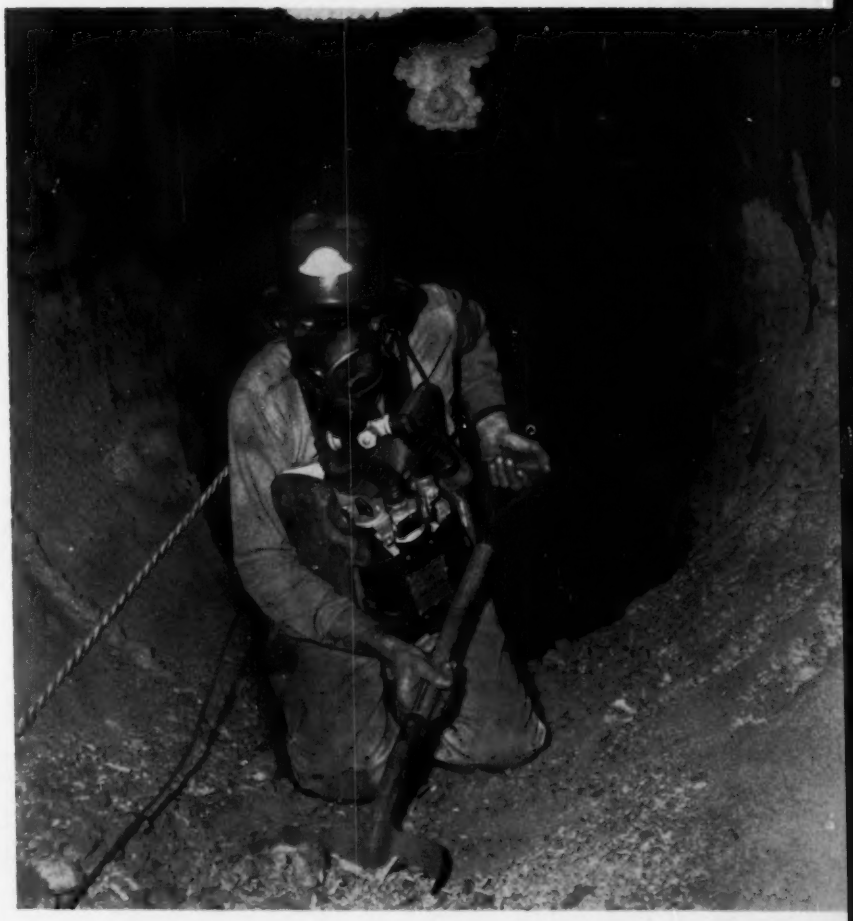
VOL. 160 — NO. 6 FEBRUARY 1961

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY



New sound-powered wire units designed to improve communications between work groups in safe maintenance of large gas mains at Republic Steel Corp. where crews are often out of visual touch. Sound-powered systems also are used in Republic's blast furnace areas. Story: P. 46.

Circulation This Issue
14,206 of which
13,495 Is Paid

MANAGEMENT · PLANT · TRAFFIC · COMMERCIAL · LEGAL · ACCOUNTING

AMERICA ON THE MOVE

ROOM-TO-ROOM DIALING: guests like this modern service—no need to go through PBX operator. Also modern manual PBX systems.

MESSAGE-WAITING LIGHT: neon lamp in PETITE Phone or standard Stromberg-Carlson telephone alerts guest there is a message for him. No need to ring rooms repeatedly.

means increased revenue for you!

Stromberg-Carlson provides you with the most modern equipment to meet all their needs

Modern America on the move demands the most modern in telephone service! Stromberg-Carlson provides the latest in motel/hotel PBX equipment to help you meet their needs. Up-to-the-minute, modern message-waiting light instruments, in manual or dial . . . full range of colors . . . room-to-room dialing . . . single-digit dialing for most wanted services . . . turret or floor type PBX's . . . call-meters at check-out desk—all are evidence of a continuing program to give you the latest and best at the lowest cost.

Choose Stromberg-Carlson equipment to serve these and all your telephone needs.

For more details, call your Stromberg-Carlson representative. In Atlanta, call: TRinity 5-7467; Chicago: STate 2-4235; Kansas City: HArrison 1-6618; Rochester: HUbbard 2-2200; San Francisco: OXford 7-3630.

STROMBERG-CARLSON
A DIVISION OF **GENERAL DYNAMICS**

ONE-DIGIT DIALING FOR SERVICES: by dialing a single digit, guests can get room service, maid and valet service, garage, outside line, long distance operator and other services.

FLASHES AND PLUGS

CATCHY MUSIC. When a husband telephoned his wife, and she heard soft music in the background, who could have blamed her for thinking that she was hearing music "when there's no one there," or that friend hubby really wasn't calling from the New York City Criminal Courts building at 100 Centre St.

Reporters and lawyers who used the WOrth 2-8372 paystation in the building were treated to continuous music that somehow was piped through the receiver and which started even before the caller inserted a dime.

When a call was made, conversation between the two parties took place against a serenade of soft music such as "Wishing," "Stay as Sweet as You Are," "Amapola," and "Just a Love Nest."

The New York *Times* in its report of the story quoted a telephone company spokesman as saying that the musical telephone may have been the result of the induction beneath the cable, with the telephone picking up some radio music coming from a bar and grill, or music being piped to a restaurant.

Anyhow, some wire splicing by the company stopped the telephone serenade. Or, so the telephone company thought. As last reported, the next day, a reporter, using the paystation in an establishment behind the Criminal Courts building, picked up the receiver to call his office, and what should he hear, but the same vagabond concerto.

•

ATALOSS. Shortly after a Lincoln (Neb.) Telephone & Telegraph Co. operator got out of toll class, the LT&T *News* reported, she called the rate desk for the route to "Atapol, Neb."

The rate operator searched and searched, but couldn't find anything that remotely resembled "Atapol."

The new operator was emphatic that her customer had said "Atapol."

But more questioning revealed that the poor guy was hanging on a pole out in the country, and he just wanted her to ring the test board for him.

•

FEATHER FOR THE PROP? There was the young husband on a job away from home who, after a few weeks, telephoned home joyously, "Honey, I made foreman. It's a feather in my cap."

After another interval, a wire to his wife read, "Made manager, another feather in my cap."

Still later, he wired, "Fired. Send money for fare home."

This time, his wife sent the message—"Use feathers; fly home." —*Indiana Bell News.*

•

WHAT ABOUT WOLFGANG? First names removed from West German telephone directories last year to save paper, are being restored in the new spring edition, the Associated Press reports. Subscribers got tired of scanning four columns of "Muller W" and demanded the Wilhelms, Walters and Werners be restored.

CHANGE OF ADDRESS

Please notify your local postmaster and the Circulation Department of TELEPHONY of change of address. Change cannot be made without the old as well as the new address. Allow three weeks for change of address to become effective.

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

1901 — 60 years — 1961

February 25, 1961

CONTENTS

IN THE NATION'S CAPITAL 17
By Francis X. Welch

GOOD SERVICE CAN'T BE CONTROLLED BY PUSH-BUTTONS 19
By Gilbert R. Brackett

1961 CONVENTION CALENDAR 20

THE PLANT MAN'S NOTEBOOK 26
By Ray Blain

TROUBLE CLEARING—HOW SUBSCRIBERS LOOK AT TROUBLE—SECTION 3 28
By L. N. Martin

TELEPHONY'S ELECTRONICS SECTION 31
By Paul Murphy

COURTS AND COMMISSIONS 38

NEWS ON NEW PRODUCTS 48

H. D. FARGO JR., *President and Director of Advertising* • A. J. STULTS, *Vice President and Advertising Manager* • R. C. RENO, *Vice President and Editor* • DAN S. FARGO, *Vice President and Managing Editor* • DIANNE P. DRUCKER, *Associate Editor* • HELEN HARDIN, *Associate Editor* • FRANCIS X. WELCH, *Washington Editor* • RAY BLAIN, *Technical Editorial Director* • PAUL E. MURPHY, *Electronics Editor* • MAYME WORKMAN, *Traffic Editor* • VIVIAN RYDEN, *Circulation Manager.*

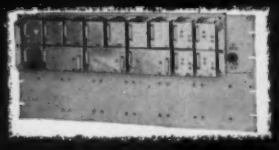
VAC **Circulation Audited and Verified (direct from auditor to subscriber) By Verified Audit Circulation Co.**

Published every week on Saturday by TELEPHONY PUBLISHING CORP., 608 S. Dearborn St., Chicago 5, Ill. Entered as second class matter at the Post Office at Chicago, Ill., under the act of Mar. 3, 1879. 30c per copy (except special issues—50c). Subscription $4.50, 1-year; $7.00, 2-years; $9.00, 3-years. Add $1.00 per year for postage to Canada and Pan American countries; $2.00 per year to Foreign countries. Telephone WAbash 2-2435.

LORAIN milestones

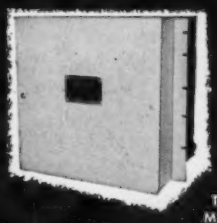
The history of Lorain Products Corporation is an unbroken series of Milestones in the telephone industry.

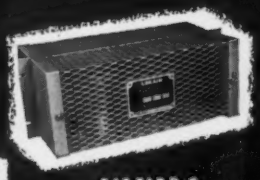
DUAL FLOTROL

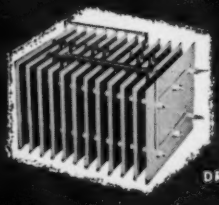

STATIC INTERRUPTER

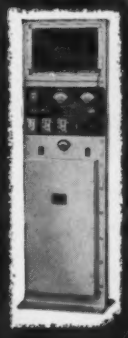
DECIMONIC CONVERTER

PBX POWER SUPPLY


TRANSISTORIZED MULTI-FREQUENCY CONVERTER


BAT-TAP D-C VOLTAGE REDUCER


DRY CEMF CELL


POWER PANEL

PIONEERS

Not By Accident—
By Intent—
Time and Time Again

LORAIN *Products (Canada) Limited*

ST. THOMAS, ONTARIO

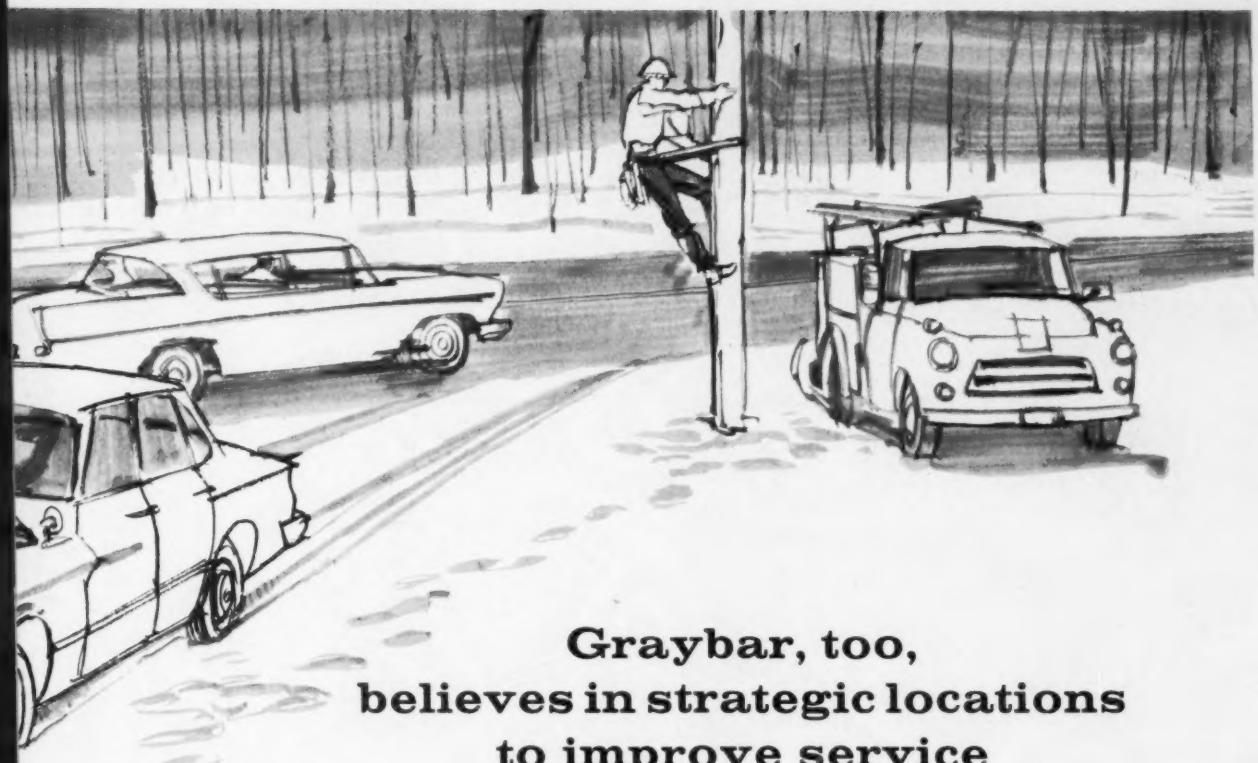
DISTRIBUTED BY: AUTOMATIC ELECTRIC SALES (CANADA) LTD., TORONTO, ONT.

DESIGNERS AND MANUFACTURERS

FLOTROL® RECTIFIERS SUB-CYCLE® CONVERTERS

PARTNERS IN DEPENDABILITY

HONE
TELEPHONE



Graybar, too, believes in strategic locations to improve service

Strategic locations can be vital . . . whether for the trouble-plagued traveler . . . or for those emergencies when a telephone company needs immediate delivery of close-at-hand equipment.

Providing independent telephone companies with what they need *when* they need it, is one reason Graybar maintains over 130 strategically-located warehouses across the nation — all stocked with essential materials and equipment. And Graybar is the *only* independent distributor serving independent telephone companies coast-to-coast.

From these locations you can obtain *everything* you require. You also get that extra measure of genuinely personal service that comes from an *independent* company . . . a company operated by the people who built it, own it, and want to increase its value to customers.

Next time, call in your Graybar man. He is *strategically* near-at-hand; always eager to serve you personally. 995

The only independent distributor serving you coast-to-coast

GraybaR

ELECTRIC COMPANY, INC.

420 LEXINGTON AVENUE, NEW YORK 17, N. Y. • OFFICES IN OVER 130 PRINCIPAL CITIES

ITT **KELLOGG** brings you

NEW REMOTE CONTROL FEATURES

RECORDING. Announces in your own voice any message up to three minutes, which you want your callers to receive. Amazing remote control signal lets you change your announcement message from any outside telephone as often as you like.

PLAYBACK. Plays back recorded messages left by callers. Remote control signal lets you (and only you) hear all recorded messages when you call in from outside telephone. Each time you signal for messages you hear only the new messages left since your last call.

DICTATION. Use CODE-A-PHONE as dictation machine in the office or from any outside telephone. Eliminates need for separate office dictation machine. Frees you from taking any dictating machine home or on business trips.

DISTRIBUTED TO THE INDEPENDENT TELEPHONE

he amazing

NEW TELEPHONE DICTATING, RECORDING AND ANSWERING MACHINE INDEPENDENTS HAVE WAITED FOR

the totally automatic

Code-a-phone®

WITH REVOLUTIONARY CODE RELAYS THAT PERMIT SUBSCRIBER TO

- TELEPHONE-IN NEW ANNOUNCEMENTS
- HEAR MESSAGES FROM OUTSIDE
- DICTATE—EVEN BY PHONE
- FILE PHONE CONVERSATIONS

NOW you can offer your subscribers a top quality telephone answering device that meets telephone company standards—and at a price everyone can afford. Unique code relay permits user (and ONLY the user) to call in new announcement messages or play back messages. Lifelike sound. Special tape cartridges can be kept on file. Models for every application, every size company.

NEW VERSATILITY

CONFERENCE CALL CIRCUITS. Records conference calls including all incoming and out-going voices. Each office using CODE-A-PHONE has an immediate tape cartridge recording of the complete conference which can be transcribed or filed for future reference.

MONITORS CALLS. Monitors incoming calls so that you may interrupt machine and talk directly with any caller. Small built-in speaker lets you hear incoming voice and your recorded announcement while you work.

TRANSMITS MESSAGES. Transmits pre-recorded message or reports to another person or distant CODE-A-PHONE. Tape cartridge provides permanent record of complete transmission.

INDUSTRY EXCLUSIVELY BY:

MANUFACTURED BY CODE-A-PHONE ELECTRONICS, INC.

ITT

FOR COMPLETE INFORMATION, WRITE TO:

KELLOGG

A Division of International Telephone & Telegraph Corp.
6650 South Cicero Avenue, Chicago 38, Ill.
Attention: Marketing Department

SAVE WITH THE
Leich Dial System

"Now . . . let's

LEICH
GENERAL SYSTEM
Subsidiary of
GENERAL TELEPHONE & ELECTRONICS

compare maintenance costs"

Before you decide on a dial system, compare maintenance costs. You'll find that the Leich Dial System cuts maintenance costs to the bone.

Telephone men with several types of dial switching equipment have made their own cost-per-station maintenance comparisons. These reports show that the Leich Dial System requires less upkeep than any other.

Because the Leich Dial System is all-relay, there's simply less to go wrong. A unique arrangement eliminates thousands of soldered connections.

Leich relays have been tested for millions of operations with no failures. Leich relay-switches have withstood millions of test operations without readjustment, replacement, or signs of wear.

A Leich sales engineer will be glad to show you how the Leich Dial System saves you money. Write today – without obligation.

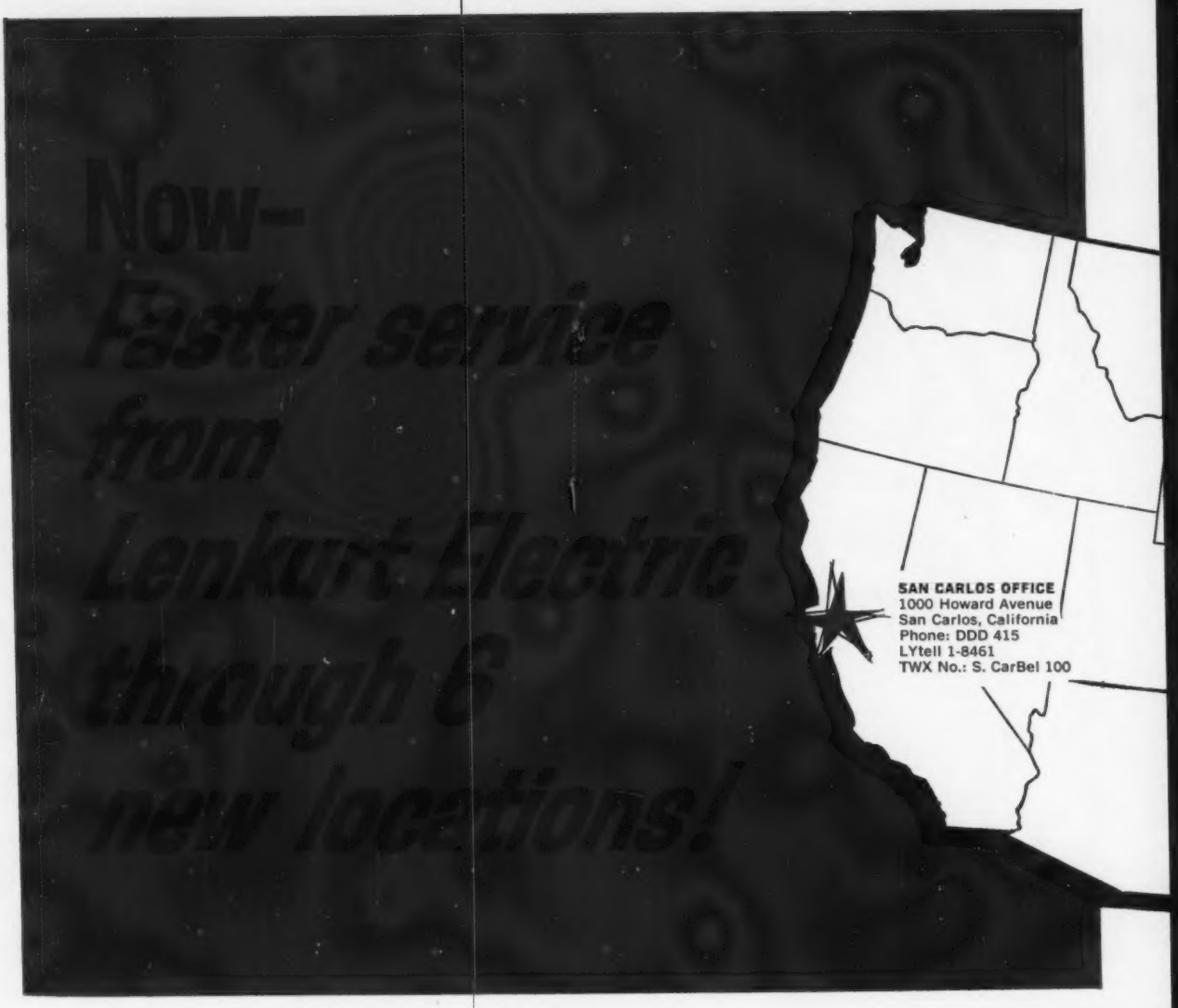
LEICH SALES CORPORATION • 427 WEST RANDOLPH STREET • CHICAGO 6, ILLINOIS

PACIFIC COAST: 11401 W. PICO BLVD., LOS ANGELES 64, CAL. EAST: 3651 CONNECTICUT AVENUE, YOUNGSTOWN, OHIO

SOUTHWEST: 1227 SLOCUM STREET, DALLAS 7, TEXAS SOUTHEAST: 5126 SOUTH LOIS ST., TAMPA 11, FLORIDA • 2918 W. MOORE ST., RICHMOND, VA.

manufacturers of telephones, switchboards and related apparatus since 1907

Now—Faster service from Lenkurt Electric through 6 new locations!



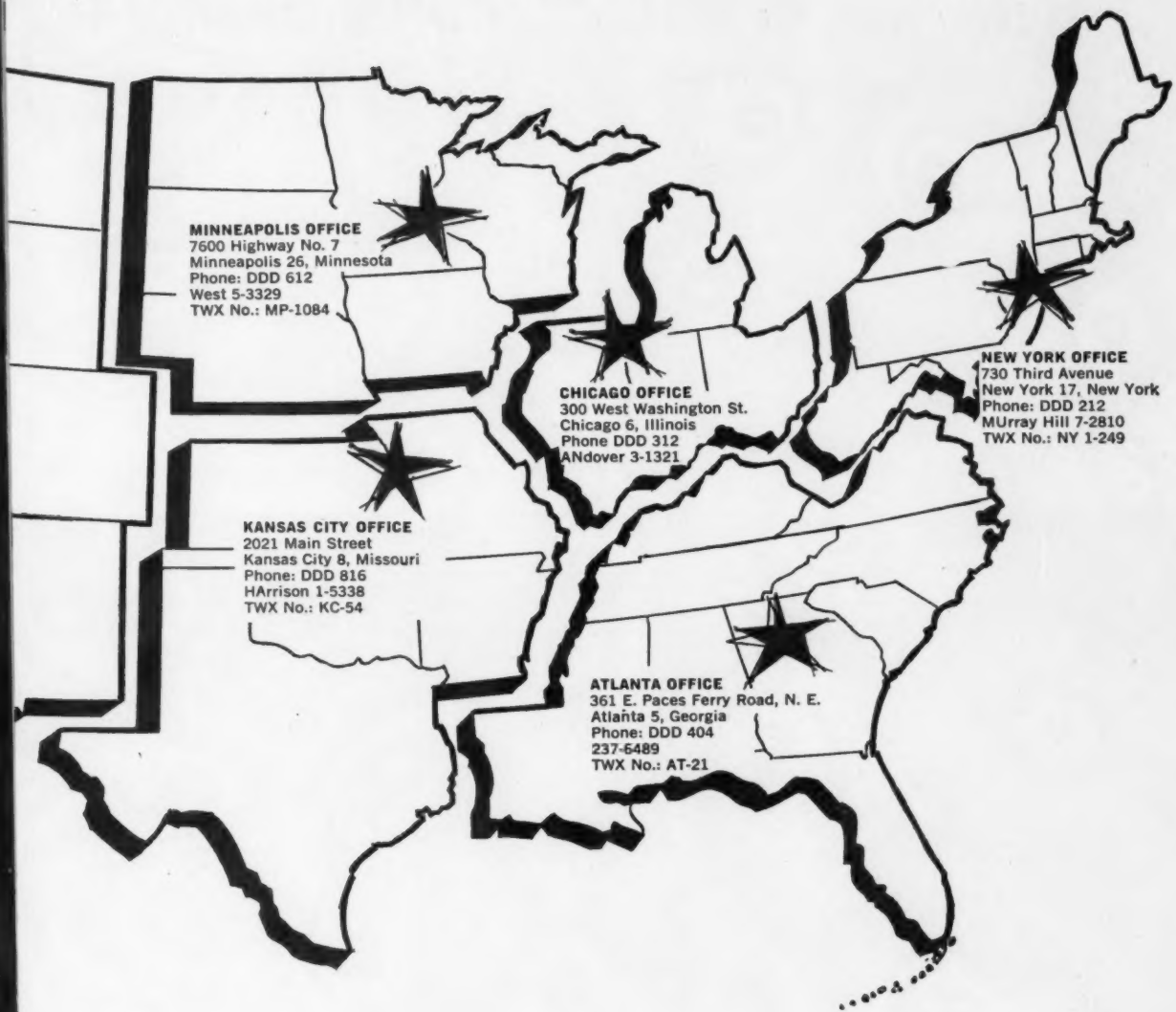
Lenkurt Electric's new telecommunication customer service is built around six regional offices, strategically located to serve you promptly and on short notice.

Each office is staffed with Lenkurt people, trained in Lenkurt traditions, and fully capable of resolving your problems on their own.

Whether you need quick delivery, fast service or engineering consultation, the Lenkurt people in your area can and will serve you with efficiency and dispatch.

Phone, wire or write—any time. Lenkurt Electric Co., Inc.

World's leading specialists in telecommunications...



LENKURT ELECTRIC

Subsidiary of

GENERAL TELEPHONE & ELECTRONICS

GENERAL SYSTEM

RAISE YOUR REVENUE?

with the new ELECTRONIC SECRETARY®

Just about every commercial customer from A-Z is a prospect for an ELECTRONIC SECRETARY® phone answering set. For example: those who can't afford to have a phone go unanswered – or who want to make telephone announcements – or who'd like to cut the cost of clerical message-taking.

They'll find an ELECTRONIC SECRETARY® set a shrewd and low-cost investment – and a cinch to use. Just the flick of a switch or button sets the unit to answer the phone; another flick and message-taking models play back the calls received.

National advertising is swelling an already big demand. For full information about our new models, call or write one of the distributors below.

A **EASY INSTALLATION.** Requires only a simple two-wire hook-up to a connecting block. Plugs into any 115 volt, 60 cycle AC outlet.

B **EASY RECORDING.** User simply presses a button—speaks into microphone to record the message that will answer calls. Easily erased and changed.

C **EASY "SETTING."** User ju flicks a switch or presses a bu ton to activate ELECTRON SECRETARY® set when he leaving phone unattended.

Electronic Secretary Industries, Inc., Subsidiary of GENERAL TELEPHONE & ELECTRONICS

GENERAL SYSTEM

IT'S EASY AS A B C

phone answering sets

D **EASY PLAYBACK.** By pressing another button, user immediately gets every message that has come in and been recorded in his absence.

E **EASY TRANSCRIPTION.** An earphone and pedal control make it easy for girl to type orders or reports . . . even in noisy offices.

F **EASY TO OFFER.** Just the right ELECTRONIC SECRETARY set for any size business from complete line that includes LP (Long Play), SP (Short Play) and AO (Answer Only) models.

Distributed by

AUTOMATIC ELECTRIC SALES CORPORATION

400 North Wolf Road Northlake, Illinois

LEICH SALES CORPORATION

427 West Randolph St. Chicago 6, Illinois

There's a GOULD Stationary Battery for every job . . .

(1) **Gould Planté Batteries** are the aristocrats of the stationary line . . . unexcelled for dependable performance. The Planté with pure lead plates assures minimum self-discharge, practically eliminates loss of internal cell capacity. Delivers powerful surges or steady, sustained flow whenever needed. Requires less maintenance than any other battery.

(2) **Gould Calcium Batteries** are noted for unfailing service on applications requiring long battery life. Scientifically-balanced positive grid and active material result in maximum length of service. Especially applicable where battery space is limited and where long life is paramount.

(3) **Gould Kathanode Batteries** offer reliable full float or partial cycle operation. Give added power retention, instant reaction at high discharge rates. Lower in cost, ideal for planned amortization programs.

Each model is available in the new Gould Plastrite Jar . . . light, compact, resistant to heat and breakage . . . the perfect outer protection for your Gould Stationary Battery. For more complete information, call your local Gould office listed under "Batteries—Industrial" in the Yellow Pages. Gould-National Batteries, Inc., First National Bank Building, St. Paul 1, Minnesota. In Canada, write to Gould-National Batteries of Canada, Ltd., 1819 Yonge Street, Toronto, Ontario.

More Power to You from **GOULD**

IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH, WASHINGTON EDITOR
AND EDITOR, PUBLIC UTILITIES FORTNIGHTLY

Secretary of Labor Goldberg defends administration proposal of gradual increase of minimum wage. . . . Possible rewriting of 750-station exemption discussed. Life of new REA head, Norman M. Clapp, sketched. REA policy guideposts in Secretary of Agriculture letter to REA employes.

BACK IN THE OLD frontier days they used to talk about the territorial lawyer who had just finished preparing a brief defending one of his clients when he was informed that he had been appointed district attorney. Without any embarrassment at all, this resourceful fellow was able to sit right down and write another brief answering all of his own arguments.

Coming back to the present days of the New Frontier, Secretary of Labor Goldberg must feel some sympathy for the predicament of the fabled old territorial district attorney. For it was Labor Secretary Goldberg who appeared before the House Labor Committee in defense of the Kennedy administration's bill to boost the minimum wage from $1.00 to $1.25 an hour in "three easy" installments.

Bearing in mind that Goldberg only a month ago was general counsel for the labor unions, and a frequent advocate of increased minimum wages, we can imagine the interest aroused when the AFL-CIO showed up and attacked the Kennedy minimum wage bill as "not good enough." It appears that the AFL-CIO wants an immediate step-up in the federal wage floor from $1.00 to $1.25 an hour, plus the coverage of an additional 6 million workers.

But Labor Secretary Goldberg, who has of course thrown away his old hat as a labor union attorney, stoutly defended the administration's proposal for the gradual increase to $1.25 an hour and the extension of the law's protection to an estimated 4.3 million workers not now covered. Incidentally, the chairman of the House committee, Representative Adam Clayton Powell (D., N. Y.), likewise attacked President Kennedy's minimum wage amendments as "not good enough."

Goldberg, however, again stoutly defended the Kennedy proposal, calling it "possible and attainable rather than the ideal." He said the administration's bill was "practical, geared to the necessity of the times and the legislative processes." Goldberg charged that "a smoke screen has been created to conceal the basic fact" that only the larger enterprises, chiefly retail chains, would be brought under the Wage-Hour law. He said he had to give his own sister, who operates a small store in Elgin, Ill., "personal assurance" that the bill does not apply to so-called "mom and pop" stores or other similar businesses.

Chairman Powell said he hoped to have the legislation enacted by Easter. But it is doubtful if the bill can be finally acted upon in such a short time —even if no changes are made. The bill, as introduced by Representative Roosevelt (D., Cal.) and Senator McNamara (D., Mich.), is virtually the same as the old Kennedy Bill in the last session of Congress. With respect to the so-called telephone switchboard amendment, the present exemption of operators' wages at exchanges of less than 750 stations would be rewritten to read as follows: "(11) Any switchboard operator employed by an independently owned public telephone exchange which has not more than 750 stations."

It is well to bear in mind, however, that this language has been interpreted by a 1960 Senate committee report to refer to "small, independently-owned companies which have fewer than 750 telephones." In other words, by interpretation, the exemption would be switched from "exchange" to a "small company" basis, with a 750-station maximum.

Personality Sketch of the New REA Boss

Last week in this department notice was taken of the fact that a new REA Administrator had been appointed, still subject to Senate confirmation, replacing the Acting Administrator John A. Baker, who will continue to serve as director of agricultural credit services. The new REA chief is Norman M. Clapp of Lancaster, Wis., and he is 46 years of age. Although his bread-and-butter work prior to his appointment was that of newspaper publisher and editor, REA Administrator Clapp has long been identified not only with Wisconsin politics but with the rural electrification cooperative movement in that state. In his role as a newspaper editor, he has been among the most outspoken journalistic exponents of rural electrification.

Born in Ellsworth, Wis., Clapp was educated at Lawrence College (Appleton, Wis.) from which he graduated Phi Beta Kappa in 1937. Shortly after that he joined the staff of the late U. S. Senator Robert M. LaFollette Jr. and became his administrative assistant until 1944 when he went into the newspaper business.

Clapp's first venture into journalism took the form of purchasing the *Grant County Independent*, a weekly newspaper in Lancaster, Wis. Nine years later Clapp became a partner in the Muscoda (Wis.) Publishing Co., which publishes the *Muscoda Progressive*. During his 14-year period in active journalism, he won a community press award for his editorial promotion of the REA program. He has worked closely with the Grant Electric Cooperative and other co-op activities.

In politics, Clapp is a Democrat and ran for Congress in the third congressional district of Wisconsin, in three successive elections (1956, 1958, and 1960). He married the former Analoyce Elkington of Madison in 1936 and has three sons, one of whom is now serving as an electronics technician in the Navy.

What kind of policies will the REA pursue under Clapp's leadership? A pretty clear outline on this was indicated in a recent message by Secretary of Agriculture Freeman to REA employes, dated Feb. 3, while Acting Administrator Baker was still in charge during the interim between the resignation of former Administrator Hamil and the designation of Norman Clapp. Secretary Freeman's letter asked REA employes to do everything in their power to assist in a smooth and orderly transition of the working controls from the Eisenhower to the Kennedy administrations. He recalled President Kennedy's pledge "to restore REA to its former role of pre-eminence—freeing it from constant concern over political interference, higher rates of interest, and budgetary starvation — and enabling that remarkable American institution to get on with its work of providing low-cost electricity and telephones for every American farm family."

The following nine points which lay the guideposts to be followed by REA officials and employes are from the remaining text of Secretary Freeman's letter:

"(1) We shall be guided strictly by the Rural Electrification Act, as amended. We expect loans which meet the legal, feasibility, and other requirements of the Act to be approved. Each individual loan application will be considered on its merits.

"(2) We expect to have an Administrator in whose judgment we shall have sufficient confidence that he may be delegated authority to evaluate and approve individual loans in accordance with the Rural Electrification Act and with the general policies, rules, and regulations established by the Secretary and the director of Agricultural Credit Services.

"(3) Rural Electrification Administration has a responsibility to assist and promote rural telephone cooperatives where necessary to extend telephone service to farmers and other rural people. We expect the rural telephone program to accomplish area coverage telephony to a maximum degree, with emphasis given to the potential which rural telephone cooperatives have to offer. We shall give increased attention to broad economic development of rural areas recognizing the key role of cooperatives to extend telephone, electric, and other service to the widest practical number of rural users.

"(4) There is a recognized need for generation and transmission loans. We expect REA to make such loans when they are feasible and needed to help solve power shortages or reduce costs to rural consumers.

"(5) We shall oppose any change in the 2 per cent interest rate on REA loans.

"(6) We shall favor strict enforcement of the public preference clause in power marketing for power generated at federally financed plants.

"(7) We recognize that the development of natural resources and the generation and transmission of electric power in federally owned facilities has had a direct and important impact on the rural electrification program, on the well-being of REA policies, as well as on sound economic development of rural areas.

"(8) We recognize that loan funds for rural electrification and rural telephony must be available in amounts adequate to assure that these programs will proceed on an orderly basis. Accordingly, we are currently reviewing the REA budget submissions.

"(9) We know that the rural electric systems carry on many technical management training programs. REA will cooperate with these programs in every possible way within the limits of the REA Act and the available budget for this purpose."

While most of the foregoing seems

(Continued on page 59)

REA Approves Four Loans

The Rural Electrification Administration approved four telephone loans during the week of Feb. 6, as follows:

Elmore-Coosa Telephone Co., Eclectic, Ala.; $94,000; Feb. 9.

This loan, together with $4,400 of the borrower's general funds, will be used to help furnish initial service to 452 subscribers in the Eclectic and Camp Hill exchanges. REA loans to this company will aid in enabling it to bring new and improved service to 1,811 subscribers. The completed system will consist of three exchanges which now furnish dial service to approximately 1,150 subscribers.

•

Whiteford Telephone Co., Ottawa Lake, Mich., $534,000; Feb. 10.

These funds will assist in providing initial service to 991 subscribers. Loan funds also will be used to help complete the authorized system.

REA loans to this borrower will assist it to furnish new and improved service to 3,980 subscribers. The system, when complete, will consist of the Lambertville exchange, which is now furnishing dial service to approximately 2,425 subscribers.

•

Leewood Telephone Co., Richmond, Mo.; $274,000; Feb. 10.

Proceeds from this loan will aid in improving service for 482 subscribers and in furnishing initial service to 89 subscribers in Missouri and in Kansas. The existing subscribers now receive dial and magneto service from the Cleveland (Mo.) Telephone Co. and the Creighton (Mo.) Telephone Co. The borrower proposes to acquire these two companies which now operate two exchanges.

Construction plans call for a new dial central office at Creighton. The dial office building at Cleveland will be retained, and the dial facilities will be improved and expanded. REA loans to this borrower will help it to bring new and improved service to 1,586 subscribers in Missouri and in Kansas. The system, when complete, will consist of five exchanges.

•

Clymer (N. Y.) Telephone Co., Inc.; $264,000; Feb. 10.

This loan will assist in improving service for the company's 601 subscribers, and in furnishing initial service to 162 subscribers. This new REA borrower proposes to improve and expand both its present dial and commercial office facilities at Clymer. A portion of these funds will help to refinance the borrower's indebtedness incurred by modernizing the existing system.

E. N. Beckerink is both president and manager of the Clymer company.

Good Service Can't Be Controlled by Push-Buttons

By GILBERT R. BRACKETT*

AN ATTENDANT'S success at a busy PBX depends a great deal upon her interest in her work. She must have a desire to do a good job of operating, to give the customers of her employer and her extension users an accurate, courteous and fast service.

Her prime duty as an operator is to attend her switchboard. Any other duties she might be assigned should be considered as subordinate to operating. No switchboard attendant can take dictation, type, sort mail, or execute any of the many other duties some employers seem to expect of their attendants, and still perform well as an operator.

We can't expect all PBX attendants to be top performers. It just doesn't happen that way. Each person is different from another. All people do not respond to a situation in a like manner.

A good attendant would be alert to the reactions of the people using her services. She would be patient and understanding and would watch for the little things that may not seem so small to the party on the line. She would be careful of her speech and actions and make a sincere effort to be courteous and fair to anyone who may call her switchboard. She would recognize the point at which time it might become necessary to abandon prescribed practices or phrases, if through non-observance she can better convey her meaning to the caller.

All Customers Treated Alike

It is true one finds it more easy to get along with some people than with others. That is human nature. Some individuals seem to attract friendly feelings while others have to force themselves to be agreeable. Because there is this difference in the way people affect each other, an attendant may speak in a more friendly manner to one customer and the next one treat in a formal, distant fashion.

It is an obligation of the job that all people who call the company be treated in a like manner. It will sometimes help an attendant to follow such dictates if she will try to picture each customer who calls her switchboard and be interested in him as an individual. It may take a little effort to be pleasant to some, but the attendant cannot afford to let a caller feel that he has not received the best service she is capable of giving.

Arguments With Customers Fatal

An attendant can very easily cause an incident to build up into a criticism. When this happens she brings nothing but harm to herself and to her company. She should forget the little things that seem to annoy her and concentrate on the bigger things that prove her worth. She may slip now and then, but when she does she will be forgiven because of her past courtesies and good service.

An attendant should never argue with a caller. She might win the argument, but in doing so lose a good friend and customer in the process. PBX trunk lines are expensive, but vital to every PBX. Therefore, the PBX is equipped with only sufficient lines to handle the business calls that come into the office. Time lost in arguing, talking on personal calls, or using a trunk line in any way that ties it up unnecessarily is unfair to the company and could adversely affect revenue.

Talking over a telephone calls for exactness of expression. The listener gets a mental picture of the person to whom he is talking and gets an idea of his emotions through his voice. A customer calling a PBX must rely entirely upon what the attendant says, therefore, she should select words and phrases which will mean the same thing to the caller that they do to her. She should choose and blend her words and sentences so carefully that they produce a clarified and effective whole. And, while the attendant is working for clearness and effectiveness, she should strive for originality in expressing an idea. To talk with clarity, the language selected must be in harmony with the general emotional mood of the conversation. Any word or phrase which is not in tune with the whole pre-conceived effect will jar the listener into an entirely different mood than wished for.

The majority of people make some motion when they speak. Either their brows wrinkle, their eyes shine, their mouth twists, their hands move or they will do something like twisting a handkerchief, put a pencil to their mouth, scratch their head, or some similar action. These little idiosyncracies make up parts of conversations and are characteristic of the person making them. They depict interest, astonishment, or perhaps doubt and usually can be understood by the listener. But an attendant is deprived of such methods of emphasis. She can express her emotions only through the tone of her voice, inflection and the choice of words she uses.

Slang Not Always Understood

Slang is usually a local form of speech. A word or phrase may be current in the home town and be easily understood when used. But it often happens that this word, phrase or expression is unknown across the state line. The listener hesitates and tries to

determine its meaning. Usually he loses the full "flavor" of the expression. This slight interruption disturbs his flow of concentration and retards his understanding; he becomes confused and gives up trying to interpret the slang word or phrase and usually loses interest in the person talking.

In listening to some people, one notices their speech is seldom spaced off into long, perfectly finished sentences. There is a certain brevity, swiftness, abruptness to their speech. They talk as their thoughts and emotions prompt them and express these thoughts and emotions in terms which are their own gained through education and background and times.

The majority of people one meets daily use simple, easy-to-understand words to convey their thoughts, but there are some who express their ideas in a vocabulary made up of long and unusual words and this results in a stilted and artificial sounding speech. When such a person talks, his listener probably smiles, shrugs and puts him down as a vain individual trying to satisfy his own vanity.

Must Make Words Count

While in social life, a PBX attendant can indulge in verbosity or long and unusual words, when operating she must make every word count. Each word she speaks to the caller should be based on the principles of economy and suggestion. These principles cannot be ignored; they must be given close attention, for the statements she utters can be a strong factor in winning the approval of the people who use her services.

If a TV set is not tuned in properly, one will get poor picture and speech reception. That is just as true of people. The more an attendant gives from her heart the happier will be her relations with the people who call her. If she honestly wants to do a good job, her heart will tell her when she succeeds in doing so.

A PBX attendant's main objective is to give the most and best service possible. To do so, she must (1) have the will and desire to do a good job; (2) be competent and cooperative; (3) believe in her company, its policies, its products and recognize that, to the calling party, she is the company.

Know Frequent Callers

It is important that the attendant know and understand the people who call her switchboard frequently so she may rise to the conditions or situations that call for diplomacy and careful handling. The better the attendant knows each one of her customers, the easier it will be for her to help the caller.

Good treatment is made up of much more than the routine handling of a call. Each customer that enters the company premises through the telephone doorway is entitled to courtesy, understanding, and intelligent and friendly assistance in seeing that his call reaches its destination promptly and without error.

Frequent contacts and discussions with management and extension users provide the attendant with opportunities to improve her value in the work she does. She can work out with her people the ways and means for service betterment. She can gain their confidence and bring about a mutual understanding of what constitutes good service. Management and extension users are looking for guidance from the only one in their organization who can solve their telephone problems quickly and without flourish—their PBX attendant.

Courtesy Builds Trade

As I have said many times before, courtesy is a valuable asset to any business and, if cultivated wisely, will help in widening the channels of trade. Business management knows that when the principles of courtesy are applied sincerely, profits show a decided improvement. The caller's impression of the entire company is strongly influenced by the spirit, as well as the efficiency, with which a PBX attendant works.

Generally speaking, PBX managements' supervision of their telephone service is negligible. They learn of a breakdown usually in the form of a complaint from a customer. By that time, the harm has been done and although apologies are given, they do not completely mend the fracture. Instructional observations on trunk lines usually disclose such deterioration of service before it reaches customer complaint proportions.

Being patient, sympathetic, willing to listen, eager to understand and to help, produces large dividends in public relations and personal satisfaction. While interest is a fundamentally important requisite, merely to have the desire is not enough. A PBX attendant must also have the capability of recognizing a chance to improve the service and make it more pleasing. She alone is,

(Continued on page 24)

Convention Calendar
1961

Association	*Date*	*City*	*Hotel*
Kentucky	Mar. 7	Lexington	Phoenix
Texas	Mar. 12, 13 and 14	Houston	Rice
Iowa	Mar. 23 and 24	Des Moines	Savery
Nebraska	Apr. 5 and 6	Lincoln	Cornhusker
Mississippi	Apr. 17	Unannounced	Unannounced
Ohio	Apr. 18 and 19	Columbus	Deshler Hilton
Wisconsin	May 2 and 3	Milwaukee	Plankinton House
Indiana	May 9, 10 and 11	Indianapolis	Claypool
Illinois	May 17, 18 and 19	Peoria	Pere Marquette
Kansas-Missouri*	May 22 and 23	Kansas City, Mo.	Continental
Pennsylvania	June 5, 6 and 7	Pocono Manor	Pocono Manor Inn
Washington-Oregon*	June 15 and 16	Victoria, B. C.	Empress
New York	June 19, 20 and 21	Schroon Lake	Scaroon Manor
California	June 26, 27, 28, 29 and 30	Honolulu, Hawaii	Hawaiian Village
Alaska	Aug. 21, 22 and 23	Palmer	Unannounced
Arkansas	Sept. 11 and 12	Hot Springs	Arlington
Rocky Mountain	Sept. 13, 14 and 15	Boise, Ida.	Owyhee
Michigan	Sept. 19, 20 and 21	Grand Rapids	Pantlind
Nevada	Sept. 19, 20 and 21	Elko	Stockmen's
USITA	Oct. 8, 9, 10 and 11	Chicago	Conrad Hilton
South Carolina	Oct. 23 and 24	Clemson	Clemson House
Virginia	Oct. 26 and 27	Roanoke	Roanoke
Oklahoma	Nov. 8 and 9	Skirvin	Oklahoma City
Florida	Nov. 26, 27 and 28	Miami Beach	The Carillon
North Carolina	Dec. 4 and 5	Pinehurst	Carolina

*Joint meeting

Save on off-road service calls with 1961 FORD 4x4'S

Electrical contractors and public utility companies everywhere are finding that Ford's good-looking 4 x 4's are real money-savers for off-road operations. They have the power and traction to plow through mud, sand, gravel or deep snow and are engineered and built for extra durability.

The F-100 Flareside model is America's lowest-priced* 4-wheel drive pickup with 8-foot box! And for special body installations on chassis-cab models, you save because Ford's 34-inch-wide frame provides for easier installation of standard utility-type bodies. And both the F-100 and F-250 (½- and ¾-ton models) are designed to keep right on saving with *lower* operating and maintenance expenses. You can choose the engine you need—either the gas-saving 135-hp Six, or the 160-hp V-8 that gives extra power and smoothness with "six-like" economy!

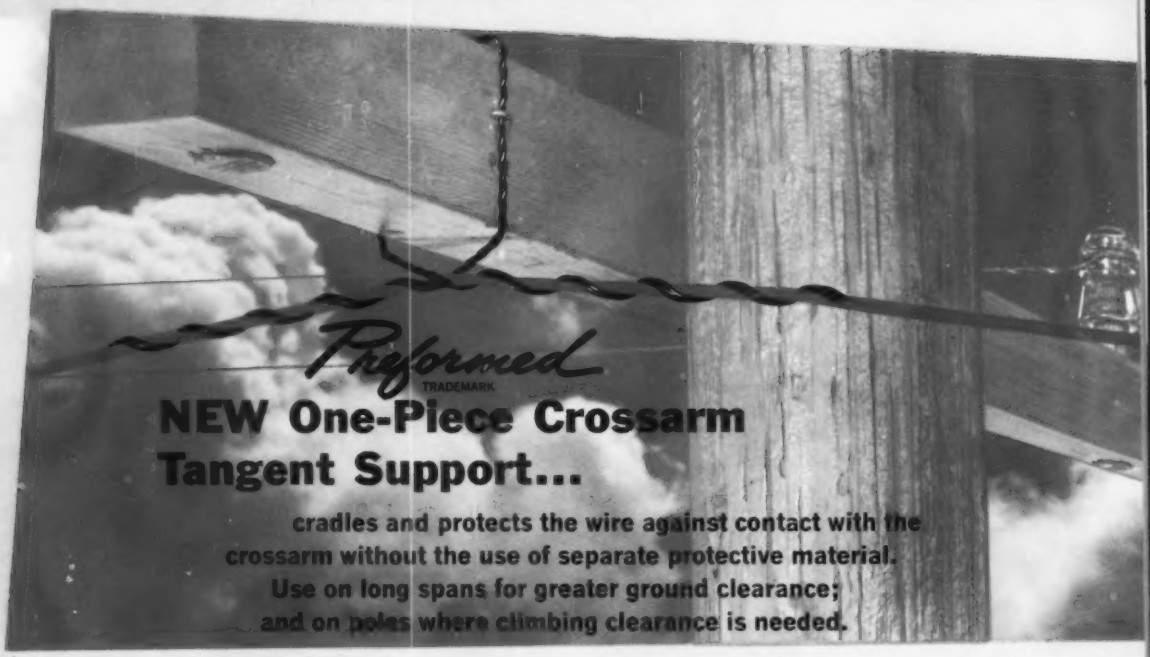
And . . . on all 1961 Ford Trucks, each part, except tires and tubes, is now warranted by your dealer against defects in material and workmanship for 12 months or 12,000 miles, whichever occurs first. The warranty does not apply, of course, to normal maintenance service and to the replacement in normal maintenance of parts such as filters, spark plugs and ignition points. Never before have you had such protection . . . such evidence of long-term economy!

*Based on a comparison of latest available manufacturers' suggested retail delivered prices

FORD TRUCKS COST LESS

YOUR FORD DEALER'S "CERTIFIED ECONOMY BOOK" PROVES IT FOR SURE...

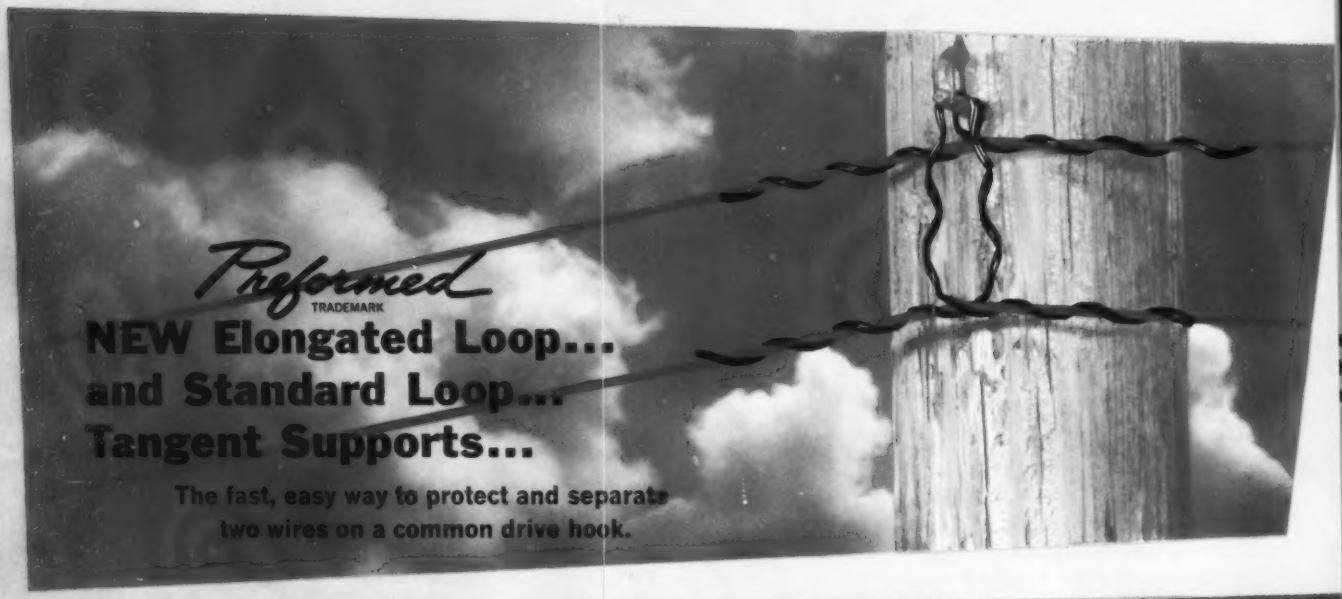
FORD DIVISION, Ford Motor Company



Preformed
TRADEMARK

NEW One-Piece Crossarm Tangent Support...

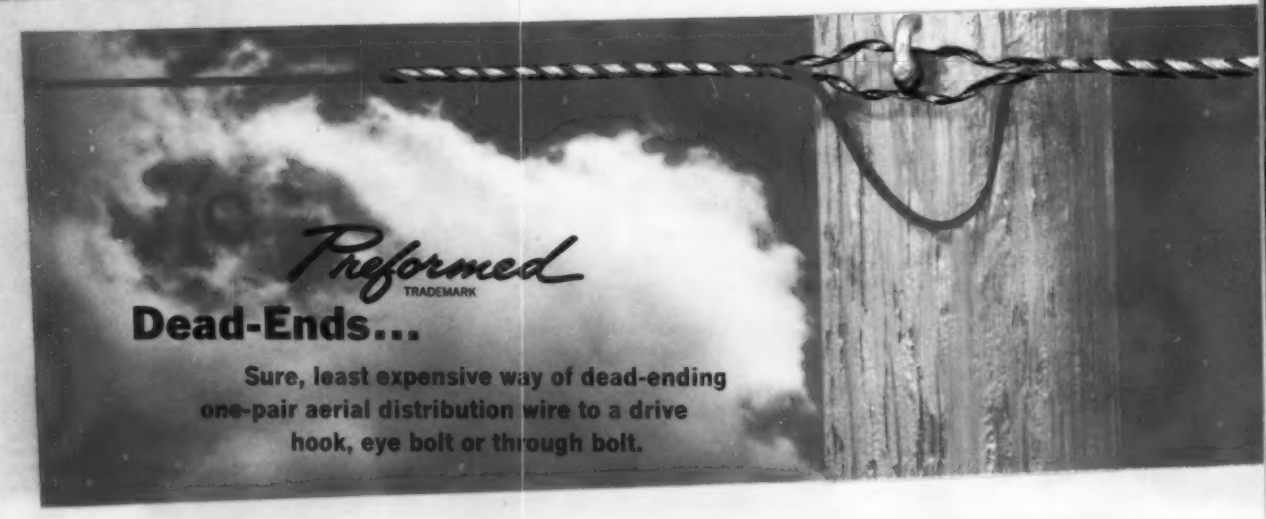
cradles and protects the wire against contact with the crossarm without the use of separate protective material. Use on long spans for greater ground clearance; and on poles where climbing clearance is needed.



Preformed
TRADEMARK

NEW Elongated Loop... and Standard Loop... Tangent Supports...

The fast, easy way to protect and separate two wires on a common drive hook.



Preformed
TRADEMARK

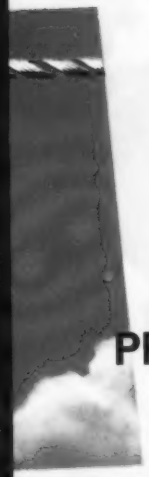
Dead-Ends...

Sure, least expensive way of dead-ending one-pair aerial distribution wire to a drive hook, eye bolt or through bolt.

For the SAFEST FASTEST SUSPENSION of One-Pair Aerial Distribution Wire (C-Rural)

use *Preformed* TRADEMARK

FLEXIBLE STAINLESS STEEL NEOPRENE COATED Tangent Supports and Dead-Ends



You can look up to Preformed TRADEMARK

WRITE:

PREFORMED LINE PRODUCTS COMPANY

5349 St. Clair Avenue • Cleveland 3, Ohio • UTah 1-4900
600 Hansen Way • Palo Alto, California • DAvenport 4-2561

PREFORMED communications products are distributed by leading Local and National Telephone Suppliers

is a trademark which is registered in the U.S. Patent Office and is the property of Preformed Line Products Company.

The products in this advertisement are manufactured under one or more of the following: U. S. Patent No. 2,761,273; 2,691,865.

and should be, the judge of the action that should be taken to adequately meet the customer's needs.

Should Know Company

The attendant should be familiar with the business of which she is a part, its policies, traditions, aims and its product if she is to give its customers satisfactory service. The better she knows her company, the more intelligently she can answer questions which are asked of her daily. An attendant should know how her job is interlocked and made a part of the over-all undertaking of furnishing telephone service. When this happens she will put her every effort into fulfilling the requirements of the job of giving good service.

The attendant should make sure the practices she has adopted are working effectively and smoothly and are not contrary to her company management's policies. She should check with the telephone company service advisor to see that the practices she follows do not conflict with practices being used by the telephone company's operators. Any divergence between the two methods of operating could slow service and become costly to both the attendant's company and the telephone company.

The telephone transmitter is keyed to reproduce the normal voice faithfully. But it cannot convert mumbled words into understandable sentences. It cannot transform angry words into suave, polite or kindly expressions. It cannot remove the distortion from a shouted phrase. It cannot dispel the confusion that comes from not talking directly into the mouthpiece. The voice is a direct expression of the inner self; the transmitter merely acts as an agent to pass on in all naturalness, a genuinely expressed wish to be helpful, a desire that can come only from the heart.

PBX Traffic Load Varies

The time of day and generally the week, month or year have a controlling effect on the traffic load a PBX attendant will be called upon to carry. Usually more traffic will flow during the late morning and early afternoon hours than at any other times during normal days. There are random incidents which may affect and increase traffic, such as bad weather, sales promotions, emergencies or local happenings within the company. The mutual interests between two persons or departments greatly influence the number of calls which will be placed by attendants during a period of time. The duration of each call will have an effect upon the traffic load. Out of these, and similar, considerations must emerge the provision of necessary facilities in so far as traffic is concerned; that is, from such figures is derived the need for additional or fewer attendants or plant facilities.

PBX attendants think in the terms of the people they serve. The concept that every signal is a person has always been a part of the traditional spirit of the service. While emergencies dramatize the spirit of the service, the every day calls offer continuing opportunity for the practice of the same spirit and, believe it or not, are even more important in the user's opinion of the service.

Personalized Service

The fundamental objectives of a PBX attendant are to give personalized service, to recognize calls that require special attention or treatment and to handle them to the satisfaction of the caller. Every PBX has dissimilar operating problems. A set pattern for all situations cannot be established. However, if the broad aims to be served are kept in mind, good service will result.

The objective of a pleasing service at a PBX is to go beyond efficient operating (promptness, accuracy, good transmission, freedom from interruption, etc.) and make the service more satisfactory to the individual customer by the spirit and manner with which his call is handled. A few of the overtones of service that go into the making of a contented caller are:

(1) Courteous, business-like interest and natural attitude toward the caller.
(2) Using routines and practices as a guide to the handling of calls—not substituting them for judgment and common sense when unusual conditions arise.
(3) Being patient, sympathetic, willing to listen, eager to understand and assist.
(4) Showing a spirit of willingness and understanding, of cheerfulness and attentiveness. Without these courtesies, the service becomes drab, impersonal and leads to the belief that the company is indifferent to the service the customer receives.
(5) Handling each contact over the switchboard in such a friendly manner the caller will feel amicable toward the attendant and her company.
(6) Giving service which carries with it attention, consideration and courtesy, which become habits and build good-will.
(7) Dealing with users of the service in such a way as to demonstrate that the company is made up of friendly, natural people; easy to approach and do business with, and anxious to make its telephone service more useful.

Management's Role

To appraise results effectively by personal observation, the person observing should keep in mind those features which tend to create favorable impressions and should concentrate on whether the operator makes full use of the opportunities presented.

Because the average user does not recognize the difference between a central office operator and a PBX attendant, the job of the attendant grows in importance. The caller's impression of the entire company is strongly influenced by the spirit as well as the efficiency of the attendant. Since results are largely dependent upon the will-to-do and enthusiasm of those who promote company business over the telephone, it requires continuing interest at all levels of management to maintain a highly smooth performance.

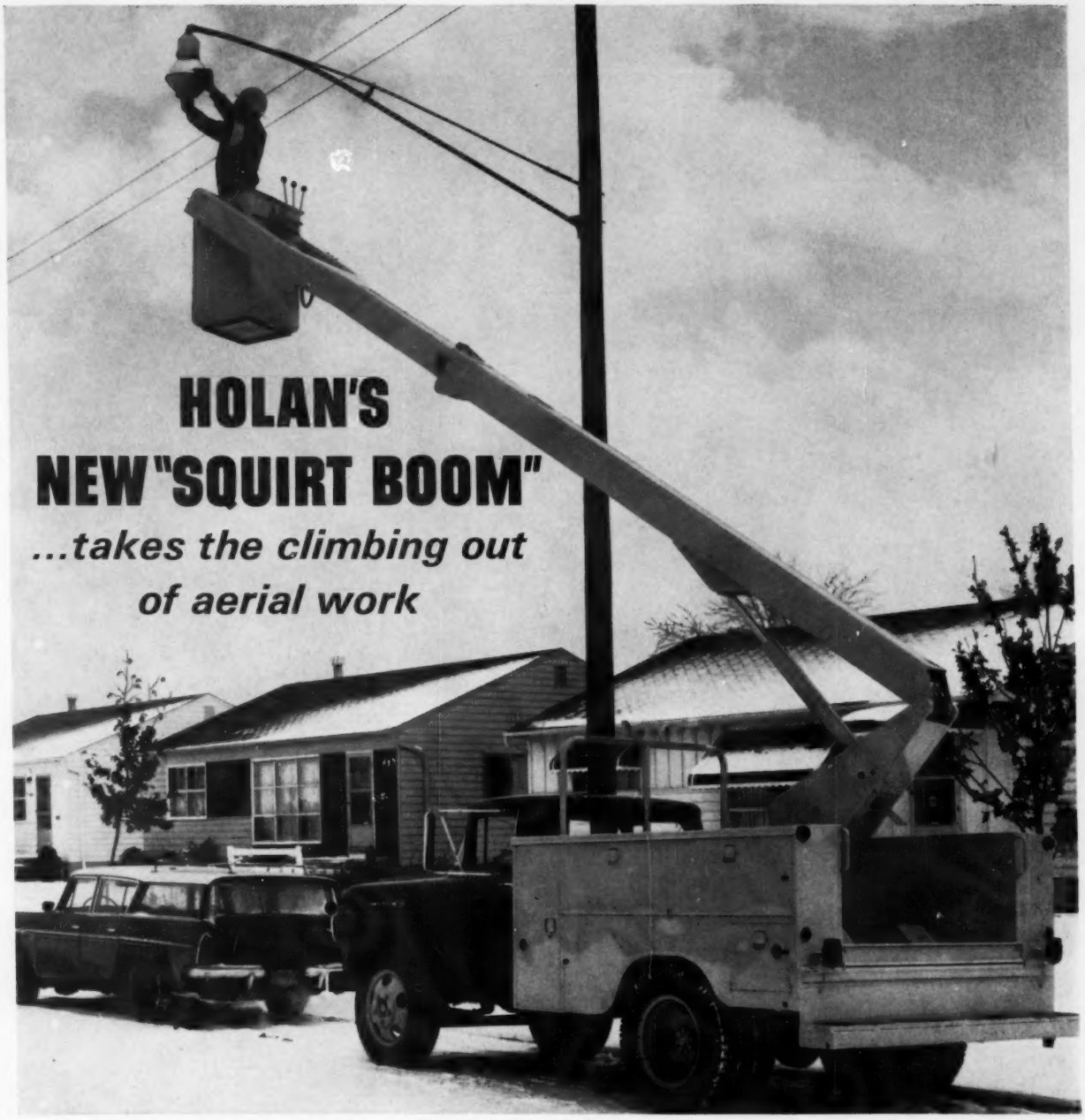
Occasionally PBX managements ask the telephone company field people to rate the proficiency of their attendants. The telephone company personnel are in no position to rate individual PBX attendants. There are many reasons why this is so. For instance, the attendant makes no product which can be picked up from time to time and inspected for quality of workmanship. The job an attendant is doing can be judged only by the way in which she moves calls through her board. The one best able to discover operating discrepancies, and a need for help, is a supervisory person who knows the communication characteristics of the business and is qualified to give the long-term help by which operating proficiency is developed and maintained.

Training, Customer's Job

However, as service people, the telephone company must recognize that a person is entitled to know what he gets in return for the money he spends for goods or services. Our aim, therefore, must be one of helping both PBX customer managements and their operating people develop a better switchboard product through the use of methods best suited to switchboard work. The approach should be one of helpfulness, as distinct from rating and fault-finding. Such a policy leaves the primary job of training, together with the evaluation of technical and non-technical qualifications, in the hands of the customer, where it belongs.

As is true with any such policy, there may arise from time to time a circumstance that could warrant some deviation from the general rule. Any case of such nature should be referred to a higher level telephone company supervisor for a detail review of the conditions before any commitment to vary from the policy is made. The possibility of being held responsible for any resulting adverse reaction from the customer, introduces a very real hazard

(Continued on page 58)



Here it is — Holan's new all-hydraulic Squirt Boom. Ideal for troublemen . . . the fast, safe way to re-fuse transformers. Saves money in group lamp replacement work . . . no climbing up and down a ladder and material and equipment ride in the bucket with the man. Speeds such work as installing electric service, mid-span taps, traffic signal and street light maintenance.

Now one man can do many aerial tasks because he has complete control with levers mounted on the fiberglass bucket (boom and bucket tested at 73,000 volts (A.C.) bucket-to-ground). Telescoping fiberglass boom extends 10′7″. . . raises to a 40-foot working height . . . rotates 360° in either direction. A hydraulic slave cylinder, located in fiberglass bucket yoke, keeps bucket level at all times.

Safe, dependable master-slave type controls are mounted on the bucket and on superstructure. Offset superstructure design and exclusive Holan torsion bars, attached to the body base, provide stability in all positions with a 300-pound payload . . . no outriggers needed.

Let us send you more details on the Holan Squirt Boom . . . designed and built for safe, fast, economical aerial work. Call your Holan Field Representative, or write us.

Holan Corporation, 4100 West 150th St., Cleveland 35, Ohio

Holan

Subsidiary of THE OHIO BRASS COMPANY

HOLAN

The Plant Man's NOTEBOOK

By RAY BLAIN, Technical Editorial Director

BACK IN 1956 the city of Little Rock, Ark., installed a pull box fire alarm system with 201 alarm boxes at a cost of $225,000. Now they are experiencing so many false alarms that they are considering junking the pull box system in favor of a telephone system. One captain of the fire department was killed while answering a false alarm sounded from one of the pull boxes.

A city director suggested that it might prove feasible in the long run to junk the pull box system in favor of a telephone system. He drew a comment that the change-over would be too expensive. Nevertheless, the director asked for a survey on the cost.

Telephone-type fire and emergency reporting systems have proven extremely successful in certain other cities. Telephone companies would be well advised to keep their city fathers informed on the advantages of this type of service.

•

A snow storm in the nation's capital always paralyzes traffic and the 8 inches that fell during the afternoon of Jan. 19, preceding the Presidential inauguration, were no exception.

The normal heavy rush-hour traffic, plus the inaugural crowd, brought everything to a standstill. This writer spent two hours traveling one mile from his office to the first filling station. There, we waited in line for over 15 minutes to make a telephone call. After reaching the pay telephone, we waited over five minutes for dial tone because of the heavy traffic load. It was surprising, also, to note the number of would-be callers who scrambled to change a bill for coins in order to make a call. For situations such as this, we like the telephone credit card which has a space to carry a coin for emergency use.

Well, to complete the story, we finally got our call through, put on our chains in a snow drift, and after fighting traffic another 2 miles, and as many hours, arrived home hungry, tired, and sleepy.

We had planned to view the inaugural parade the next day from Clyde Bailey's USITA office, but because of slick, snowy highways, we occupied a chair in front of the TV instead.

•

A good question today is: What will your telephone look like in 1980? Telephone engineers agree that the telephone that will be in use 20 years from now has not yet been invented.

Electronic switching will undoubtedly cause the conventional bell to be changed to a tone signal. And touch-tone calling, or push buttons, will in all probability, replace the present dial.

The popular conceptions of tomorrow's telephone cover a range of types, including unseen units in the wall which will accept and deliver messages to instruments that will permit users to see as well as to hear the other party.

Personally, we do not intend to worry about the telephone of tomorrow as we find that the present version leaves little to be desired.

•

We never realized what a burden it would be to have one's name listed in a telephone directory as a manager until we discussed the subject with Dave McNish of Stromberg-Carlson, the other day. Dave was formerly listed as a manager for Bell in the Norfolk, Va., area.

A person so listed may expect to receive calls at all hours of the night. In order to avoid nuisance calls late at night, most managers have two telephones in their residence. One is unlisted, so that they can be reached in emergencies and by friends. The other is equipped with a switch so that it can be cut off at bedtime.

People with a just complaint are given every consideration by a good manager in all cases. This is as it should be, and it contributes to good public relations.

Cranks are the most difficult to handle and often prove a real headache for the manager.

A certain type of individual with a grudge at the telephone company often takes a delight in heaping verbal abuse on the manager.

The inebriated caller is perhaps the most difficult pest of all. One method is to listen patiently to his long story, and then say, "I am sorry, but I must have missed the point somewhere. Will you please repeat that?" In most cases, the caller will hang up in disgust and have another drink.

•

According to the Bell Laboratories *Record*, today, more than 100,000 miles of cable are maintained in a virtually moisture-free atmosphere by pumping several million cubic feet of dry air from central offices into cable networks each day.

More than 1½ tons of water must be removed from this air before it is delivered to these cables. There are thousands of specially designed, air-drying units working around the clock to produce this immense volume of dry air.

Cross Talk

The man who saved money in the old days was a miser. Nowadays, he's a wonder!

•

Taxes, we are told, are the price of civilization. Deep in the heart of the jungle there aren't any.

New Collins DC system insures uninterrupted communication...when you need it most!

Now... security against even momentary outages during power-disrupting storms. Collins' dc-powered Microwave and Carrier Systems operate directly from float-charged batteries — eliminating rotating machinery. The results: improved reliability, reduced power drain, lower maintenance, decreased noise and elimination of standby generators. Several voltage combinations are available, enabling you to select the one that best integrates with your existing plant. For technical literature, write Collins Radio Company, Texas Division Sales, 1930 Hi-Line Drive, Dallas 7, Texas.

See the Collins 11-15 kmc system with dc power at Room No.881A, USITA Convention, Chicago, Illinois, Oct. 9-12.

COLLINS MICROWAVE AND CARRIER

COLLINS

COLLINS RADIO COMPANY • DALLAS, TEXAS • CEDAR RAPIDS, IOWA • BURBANK, CALIFORNIA

How Subscribers Look at Trouble — Section 3

By L. N. MARTIN

IN THE FIRST two sections of the series on trouble (TELEPHONY, Nov. 19, 1960; Jan. 14) as seen by the subscriber, we discussed three items which tend to cause unfavorable subscriber reaction, viz., excessive trouble, excessive clearing time, and carried-over trouble. There are several other items in this category but this article will be limited to the three mentioned above.

Reducing the amount of trouble involves the whole field of plant work: Engineering, construction, installation, the selection of equipment and materials, preventive maintenance, and the daily handling of reported trouble. It is obvious that a large book rather than a magazine article would be required to cover this subject, therefore, we will confine this article to clearing time and carried-over trouble and will discuss practical methods of controlling and reducing these undesirable occurrences.

Items Go Together

These two items go together. If the usual method of counting clearing time is used, a case may be carried overnight, or even over a weekend, and yet be counted as cleared within the time objective. This serious gap is covered by what we might call the "anti-carry-over" project. The objective for carried-over trouble should be *zero*.

So far, we have not suggested definite objectives for clearing time. The tentative objectives should not be too difficult to meet. That would cause discouragement. After some experience and a study of the subscriber reaction, the objectives may be adjusted up or down as required. The first requirement is to have *some* objective as a target. Some companies have used four hours for a residence telephone, two hours for a business station, and 30 minutes for those community emergency services which we discussed in the preceding section (Jan. 14 issue). This is a good starting point.

The number of trouble reports varies greatly from day to day. Some days there will be very few reports; on others the number of reports will seem to be overwhelming. If the trouble clearing force is just large enough to take care of an average day, on a day of light trouble other work must be found for some of the troublemen, and on a day of very heavy trouble, the repair force must call for the assistance of other departments.

PART 78. The preceding article in this series appeared in the Jan. 14 issue.

Work Easy To Find

It is easy to find work for repairmen who would otherwise be idle. The company should have a list of small preventive maintenance jobs that can be assigned to a repairman who has run out of trouble to clear. If a repairman can be spared for half a day he can be assigned to a larger preventive maintenance job, help an installer who has a difficult job, or do some necessary work in the store room or garage. It should be noted that these are not "made" jobs. It is just an opportunity to get some necessary work done.

On the other hand, to secure help for the repair force may not be so easy. The installers are usually the first to be called upon, but they also have their schedules and objectives. Many companies use the appointment plan on service orders. Except in real emergencies these appointments must be kept. A construction foreman may be seriously handicapped if he "loans" a man from his gang. Of course, in the case of disaster trouble (storm, flood, etc.), all construction and installation work will be postponed and "all hands and the cook" will become trouble men.

Pass Up Inspection

There is one source of more time for the regular repairmen. On each case of trouble that involves a visit to the station, the repairman should inspect the installation from terminal to ground clamp and correct any unsatisfactory conditions found. This often requires more time than is required to clear the reported trouble. On a day when the trouble load is very heavy, these inspections may be omitted, thus making much more time available for clearing reported trouble.

In view of the foregoing, we believe that the repair force should be somewhat larger than that required to handle an average day's trouble load.

In the horse and buggy days, repairmen were always routed in a way that would involve the least amount of driving time. The route was usually an irregular circle that began and ended at the storeroom or stable. Today, motor vehicle time is not a serious consideration. A troubleman can drive his truck across the city or across his territory in a very few minutes.

Clear Reports in Order

When clearing-time objectives are in force, the trouble reports must be cleared in the order that their clearing time objectives expire. This may cause the man to cross and recross his track many times. (We said that it might cost a little more to clear trouble this way.) It should be noted that this plan does not mean that all business stations are cleared first. For example: There is a business case that is one hour old and hence still has one hour of grace. There is also a residence case that is 3½ hours old and hence has only a half hour of grace. The residence case is cleared first.

The job of the telephone repair force differs greatly from that of the assembly line workers. The worker on the assembly line has his jobs brought to him by the conveyor which travels at a constant speed. Each job is the same —each day is the same. When the conveyor stops at 5 p.m. his day's work is done and his responsibility ceases.

To the telephone repair force, each day is a brand new job. It will not be

ACHIEVERFONE

built for reliability

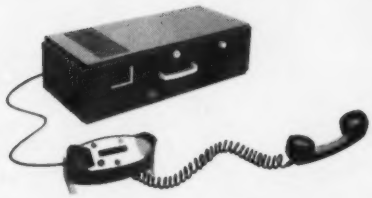
Regardless of weather conditions, temperature extremes or the amount of usage, AChieverfone by AC continues to provide reliable communications long after other mobile phones have failed!

Careful design and punishing engineering tests have proven AChieverfone reliability. For example, the transmitter drivers and final are in a box cooled by a cast heat sink at the end of the R-T unit. This means that AChieverfone operates at about 18°C cooler than comparable models. Furthermore, special perforations allow convection cooling of the power supply as well as radiation. In fact, AChieverfone has operated at a 5 minute transmit—15 minute receive duty cycle at 55°C for over 1,500 hours without failure.

Consider AChieverfone for your customer's vehicles. Reliability, fast installation, low initial cost and other features make it the best common carrier mobile phone available today.

SPECIFICATIONS—FCC Type Accepted

Transmitter: 144-174 Mc
4 channel
RF output: 22.5 watts into 52 ohm load
Receiver: 144-174 Mc
4 channel
Wide Band (60 kc) or Narrow Band (30 kc) models available (Wide Band quickly converted to narrow by substituting IF filter)
Frequency Stability; within 0.0005%
Selective Signaling; 51,000 five-digit (compatible, 2-tone sequential) codes available
Size: Receiver-Transmitter, 21¼" x 8⅜" x 6¼"
Weight: 35.5 pounds, including receiver-transmitter, control head and cable.



ACHIEVERFONE

Another Versatile Product of

AC Spark Plug *The Electronics Division of General Motors*

Milwaukee 1, Wis. *Telephone BRoadway 3-1120*

the same as yesterday's job and will not be exactly like any other day of the year. Each new day is a challenge that should be attacked with all the enthusiasm that goes with a new job. To this writer, this makes telephone work interesting and enjoyable.

Planning the Day

Let us look at a typical repair force day. The supervisor plans the work before 8 a.m. The points to be considered are: The amount of trouble on hand, the present weather condition, the weather forecast for that day, the average amount of trouble that may be expected under the prevailing conditions, and the number of repairmen available. Bad weather often brings in more trouble and heavy rain or snow, high wind or extreme heat or cold will slow down the outside work. After a study of the above facts, the supervisor decides whether or not inspections will be omitted that day and whether or not the repair force must be augmented.

He arranges the reports in the order that their clearing time expires. One way of doing this is to have a pigeonhole in the test desk for each half-hour of the day. Cases due between 8 and 8:30 are placed in the first pigeon hole, those due between 8:30 and 9:00 in the second, and so on.

Conditions may change during the day. The weather may become better or worse. More trouble or less trouble than expected may be reported. The early morning survey and planning is not enough. It may be necessary to review the situation in mid-morning and revise the plans.

Survey at Noon

During the noon hour, another complete survey is made and, if necessary, the plan for the rest of the day is revised. If additional help is needed, now is the time to arrange for it. The day's objective must be constantly kept in mind. What is that objective? To clear all trouble that is reported before 5 p.m.; to carry no case over to the next day; to clear each case within its time objective. In a very small exchange, the one repairman may have to do all this planning himself.

About 4 p.m. comes a critical time. Will we make it today? If there is any doubt, there is still time to do something about it. Today, there *is* some doubt. The supervisor tells the men to "step on it" and to omit any unnecessary work. During this last hour, only work necessary to restore service will be performed.

More trouble is reported. At 4:15 p.m. an installer completes an installation and will not have time to complete his next job. This is fortunate. He has everything on his truck that is necessary to clear trouble. This saves the day. At 5 p.m. not a case is carried over. Every case was cleared within its time objective. Tomorrow is another day.

We are not so optimistic as to expect such an outcome *every* day, but that is the target. If we make it on 98 per cent of the days we will be quite happy. If we make it 95 per cent of the time, we will not be too unhappy.

A case of trouble that is reported at 4:59 p.m. obviously cannot be cleared by a repair force that quits work at 5 p.m. Something must be done about this. In the "good old days" any troubleshooter thought enough of the company and its customers to work for a few minutes longer to get that last case. Also, some day he might want a half-hour off for some personal reason and it was freely granted. We believe that most present-day repairmen have this same dedication to their job but they, as well as the company, are bound by the letter of the union contract. Overtime under the union contract may be expensive for the company but, at times, it may be necessary to keep faith with the subscribers. If an exchange has several repairmen, it may be well to schedule one of them 8:30 to 5:30. In a very large city there will probably be a small night force that will report at 5 p.m. or a little later and who can pick up a few remaining cases so that none will be carried over.

There are several more items to be discussed before we leave the subject of developing a repair service that will be acceptable and pleasing to the subscriber. Some of these are: Repeated trouble, chronic trouble, disaster trouble, how to tabulate the results with a minimum of clerical expense, and how to ascertain the opinions of the subscribers.

We hope to cover all of these subjects in future articles.

Signal Corps Lt. Col. Shiflet Awarded Commendation Medal

Lt. Col. Kenneth E. Shiflet, technical liaison officer, has been awarded the Army Commendation Medal, the Office of the Chief Signal Officer has announced "for gaining invaluable new prestige for the Army Signal Corps and greater public appreciation of the importance of its mission and accomplishments."

The medal was presented to Colonel Shiflet, who had been technical liaison officer since August 1957, at a ceremony in the office of Maj. Gen. R. T. Nelson, Chief Signal Officer, at the Pentagon.

Colonel Shiflet has been reassigned to the Armed Forces Staff College, Norfolk, Va. He is succeeded as technical liaison officer by Lt. Col. Richard W. Dowell, formerly assistant signal officer, USARCA-BIB.

A free lance writer, Colonel Shiflet has had material published in such magazines as *Cosmopolitan, Esquire, Collier's* and *Blue Book*. His first novel, "The Valiant Strain" was published in 1959 and is currently being made into a motion picture. A second novel, "The Convenient Coward" has been sold to the Stackpole Co. for publication later this year.

Colonel Shiflet is a native of Penn Yan, N. Y., but grew up in Terre Haute, Ind., graduating from high school there.

He attended Rutgers University and the University of Indiana, and received a bachelor of arts degree in journalism from UI. He entered the Army as a volunteer in April 1941, and in July 1942, was commissioned a second lieutenant in the Army Signal Corps, after having attended Officers Candidate School at Fort Monmouth, N. J.

USITA to Conduct First Telephone Marketing Seminar

The United States Independent Telephone Association has announced that its telephone Marketing Committee will conduct its first marketing seminar at Michigan State University, East Lansing, July 16 through July 23.

USITA stated, in its member letter of Feb. 15, that the Telephone Marketing Seminar has been designed for top telephone management people, and added: "It is not intended to be a discussion of 'How to Sell' but instead is designed to give top management (presidents, vice presidents, managers and the like) an understanding of effective marketing and a desire and ability to encourage a broad marketing program in their own companies."

It is contemplated that this seminar will give the participants a greater awareness of the marketing dimension of the business, as well as add to their knowledge of marketing philosophy, principles and methods.

Outstanding people from university staffs and private industry will present the course, it was stated.

USITA said only a limited number of applicants can be selected—on a first-come, first-served basis, provided they meet the management qualification criteria.

Application blanks are to be mailed by Mar. 15.

PAGING SYSTEMS

AN ELECTRONIC paging system developed by General Dynamics/Electronics was used in Washington, D. C. during the recent inauguration to assist in maintenance of communications with key inaugural committee officials and other dignitaries.

This same basic "Pagemaster" system has also been installed in many areas of the country, especially the larger cities, by Bell System companies as well as the larger Independent telephone companies.

The Pagemaster system is a selective wireless paging system in which a radio transmitter sends out a high frequency radio signal coded with audio tones to energize a single battery-operated, pocket-sized receiver, causing it to produce an audible high-pitched tone. The person being called proceeds to extinguish the tone by depressing a button on the receiver unit and telephones the message center or the predetermined number from which the call was initiated.

In the basic encoder which produced the intelligence to be transmitted, a total of nine different tones, under control of a single switch, may be produced with three switches being required to produce the three-digit code or four switches used to provide a four-digit code.

The audio tones employed for coding range in frequency from 160 to 301.8 cycles per second. The amplitude-modulated receivers utilize tuned vibrating reeds for decoding incoming signals and each receiver responds to a different code.

To conserve on the use of the frequency spectrum, telephone companies providing highway mobile service are operating this service on the same frequency; however, since highway systems use frequency-modulation and since the Pagemaster system receivers are amplitude-modulated, a separate amplitude-modulated transmitter must be installed.

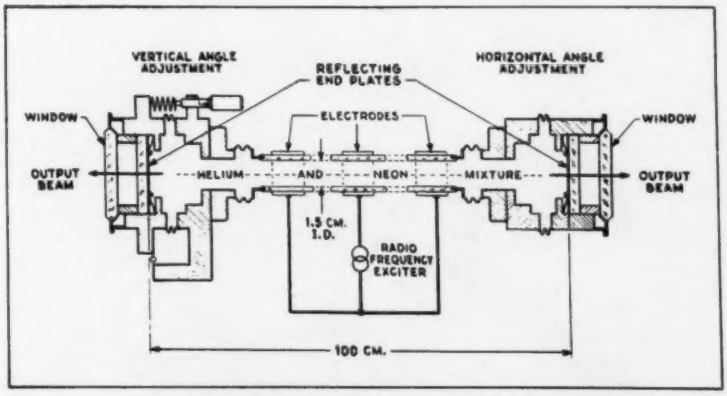
ELECTRONIC RESEARCH

IN PREVIOUS Electronics Section installments, consideration was given to developments of new devices called "masers." An earlier installment dealt with masers which were capable of generating pulses of coherent light, possibly useful for communication purposes. This was known as the ruby maser, a development of Bell Telephone Laboratories.

The Electronics Section of Jan. 28, 1961, discussed an optical maser developed by International Business Machines Corp. capable of generating continuous coherent light waves and requiring approximately 1/500 as much power as the ruby maser.

A new type maser has recently been developed by Bell Telephone Laboratories (cover story, TELEPHONY, Feb. 11, 1961), also capable of generating continuous waves of coherent light. The new gaseous maser uses a mixture of helium and neon gases through which an electrical discharge flows similar to the way an electrical discharge takes place in a conventional gas-filled tube. The energy from this internal discharge is said to excite the helium atoms to a very high "metastable" energy level from which they normally would not radiate energy.

In the mixture of gases, the neon atoms collide with the excited helium atoms; a transfer of energy takes place through the collision process. The neon atoms are stimulated to radiate their energy as required. A beam of energy is reflected back and forth inside the gas-filled tube by semi-reflecting plates at the end of the tube, increasing in intensity with each trip. A very narrow beam of coherent infrared light waves is



Cutaway view of Bell Laboratories' gaseous optical maser.

emitted through the ends of the plates. It was explained that the tube is so cool in operation that it can be held in the hand without discomfort. The output power is said to be in the 10-milliwatt range with an input power in the tens-of-watts range.

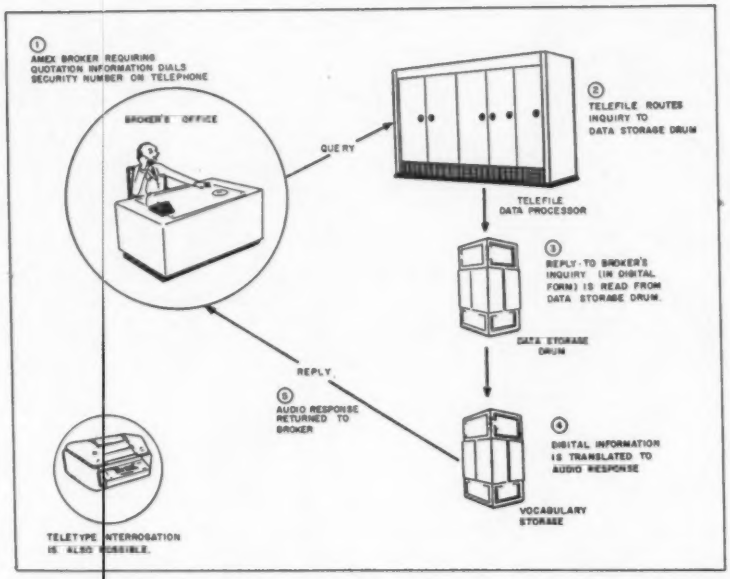
Optical gas masers and optical solid masers are expected to complement each other in their application. The latter maser, being essentially a high-power device, will have important uses even if limited to pulsed operation.

Since the neon atoms can radiate energy from almost any one of four upper energy levels to one of 10 intermediate levels, up to 30 discrete frequencies can be emitted by the maser, depending on the specific mode of operation. The range of possible wave lengths lies between 9,000 and 17,000 A. Present laboratory models have operated at five different wave lengths between 11,000 and 12,000 A.

SPECIAL SERVICES

WITH EXPANSION of many large manufacturing and service businesses continuing, ordinary telephone apparatus and facilities sometimes do not fill the bill. These customers may require special communications services to meet their needs for greater speed and efficiency. Such requirements necessitate careful planning and cooperation between the telephone industry, the manufacturer of special communications terminating equipment, and the customer.

In a recent major step forward in the field of investor information and education, The American Stock Exchange announced the purchase of a revolutionary communications facility and data processor. The electronically-automated quotation network will provide investors with the world's first complete commercial application of a combination of voice-produced and print-out reporting techniques.


1 AMEX BROKER REQUIRING QUOTATION INFORMATION DIALS SECURITY NUMBER ON TELEPHONE
BROKER'S OFFICE
QUERY
2 TELEFILE ROUTES INQUIRY TO DATA STORAGE DRUM
TELEFILE DATA PROCESSOR
3 REPLY TO BROKER'S INQUIRY (IN DIGITAL FORM) IS READ FROM DATA STORAGE DRUM.
DATA STORAGE DRUM
REPLY
5 AUDIO RESPONSE RETURNED TO BROKER
4 DIGITAL INFORMATION IS TRANSLATED TO AUDIO RESPONSE
VOCABULARY STORAGE
TELETYPE INTERROGATION IS ALSO POSSIBLE.

Teleregister Corp.'s Telefile Quotation System for the American Stock Exchange. The diagram shows interrogation and reply.

It was reported that the complete data-processor has been designed to enable the implementation of subsystems permitting it:

(1) To be interrogated from any point in the United States and Canada.
(2) To operate a ticker system.
(3) To allow same-day comparisons of trades and to do most American Stock Exchange clearing functions.
(4) To reduce, for member firms, considerable back-office billing and other time-consuming procedures.

The new system will provide instantaneous, automatic electronic reports on open - high - low - last - bid - asked - volume - to - the - moment and size (number of shares bid for and number of shares offered) figures as contrasted to the present bid-and-asked last price procedure, which does not have the flexibility to allow the history of the activity of a stock action to be incorporated or the ability to speed up during peak periods when demand for information increases.

The new system is said to have a capacity for reporting via telephone or print-out 2,000 securities at the inquiry rate of 72,000 per hour. It is expected that some 750 member subscribers will be able to interrogate the system without obtaining a busy condition.

It was stated that the new "Telefile" system was developed by The

Teleregister Corp., and was designed from a procedures manual prepared by Joseph F. Reilly, chairman of the board of governors of the ASE. The New York Telephone Co. cooperated on the communications phase and will supply the terminating telephone facilities.

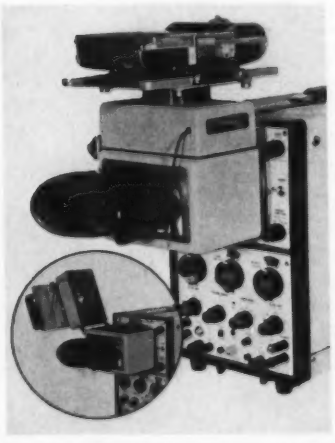
OSCILLOSCOPE CAMERAS

IN THE STUDY of complex electrical wave forms, considerable use is made of oscilloscopes. Patterns produced on the screens reveal characteristics of the electrical wave and are used to determine the nature of trouble in various circuitry or the results of experimental research of electrical circuitry. Often, it is desirable to maintain a physical reproduction of these various analyses as a ready reference. Photography of these conditions is possible through the use of special cameras.

A new series of oscilloscope cameras has recently been developed by Analab Instrument Corp. The new cameras feature binocular viewing, Polaroid film backs, a choice of three lenses, and a wide variety of auxiliary components that add to the versatility of the camera. The cameras are designed for use with and may be adapted to all existing oscilloscopes, the company stated.

The basic unit for all cameras is the binocular-viewing periscope that mounts on the bezel of the cathode ray tube. The periscope is said to contain a dichroic mirror that reflects 80 per cent of the light from the screen to the camera while allowing the remaining light to be transmitted for binocular viewing.

The camera unit mounts on top of the periscope and, through the use of a slip-hinge mechanism, the two units may be readily separated. This arrangement provides accessibility to the lens and shutter.



The mechanical features of the new Analab camera unit and periscope are shown above. The slip-hinge mechanism permits access to the lens and shutter.

ELECTRONIC TEST EQUIPMENT

IN THE HIGHER echelon of telephone maintenance where electronic apparatus is taken to a centralized repair shop to "clear-out" defects, considerable test equipment is necessary. The equipment generally used consists of oscillators, and various electrical meters calibrated to read in volts, amperes, and decibels above a certain reference.

Equipment to provide the required operating potentials must also be made available. This source of power may come from batteries or ac-operated power supplies.

It often is convenient to have these various power sources variable in order that the apparatus under test may be checked for performance under varying line conditions or for exposing intermittent components by inducing failure with over-voltage.

EICO Model 1078 metered variable ac bench supply.

Electronic Instrument Co., Inc. (EICO) has recently announced the availability of two new ac bench supply models. The new units, Models 1073 and 1078 are available in kit or wired form. The current rating of the 1073 is three amps., while the current rating of the 1078 is 7.5 amps. Both units are specified as having variable voltage outputs 0-140 volts ac from an input of a 120 volt ac line.

ELECTRONIC READERS

LETTERS of the alphabet translated to musical sounds have made it possible for blind people to "read" printed texts, newspapers, and typewritten material.

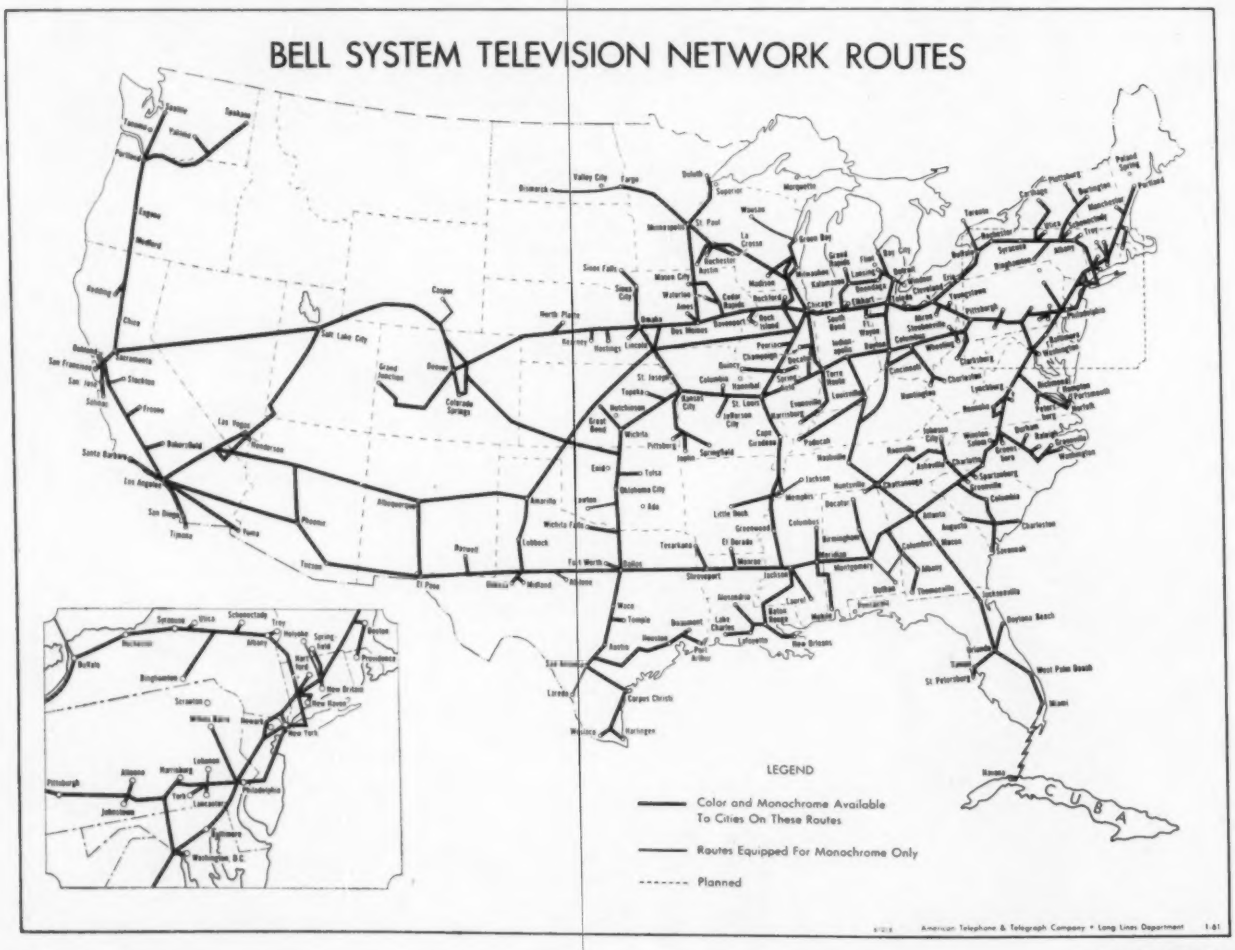
What has been invented is called an "optophone;" it is the result of many years of development work by researchers at London's famous St. Dunstan's Home for the Blind. The device, resembling an old-fashioned typewriter, makes it possible for persons to "read" a maximum of 46

words per minute including the time lost moving from line to line.

In operation, current pulsations through a telephone receiver, as the result of a varying amount of light on photoelectric cells, produce the various musical sounds. It is by recognition of the various characteristic tunes or motifs and the connection with actual forms of letters that one is able to read. Actually, with the learning of these sounds of the alphabet, sounds of syllables and even words become familiar to the ear.

During the scanning process, printed matter is placed face down upon a glass plate of a book rest. An aluminum casting, called a tracer and located beneath the glass is swung from side to side of the rest. The tracer contains an electric lamp, a revolving disc, disc-drive motor and photoelectric cells.

The lamp casts light which is re-


BELL SYSTEM TELEVISION NETWORK ROUTES
LEGEND
Color and Monochrome Available To Cities On These Routes
Routes Equipped For Monochrome Only
Planned
CUBA
American Telephone & Telegraph Company • Long Lines Department 1-61

flected by a prism through a slit to the revolving disc. The disc is perforated with holes arranged in six concentric circles near its edge. In the innermost circle there are 18 holes while the outer circles contain 24, 23, 30, 26, and 36 holes. The rotating disc interrupts the light at six audio frequencies varying as the holes in a row and the speed of rotation.

Light reflected from the printed page is cast upon the main photoelectric cell located beneath the glass plate. A second cell also receives light which has been reflected aside before reaching the printed page. The function of this cell is to silence the optophone during periods of time that the light is being cast upon blank portions or spaces. This cell is referred to as a "balancing cell."

Designers believe that the machine is in its infancy and that the development ultimately may lead to the design of a machine that will read aloud from a printed page.

ELECTRONICS BOOK

BASIC CARRIER TELEPHONY, by David Talley.

176 pages; price: soft cover, $4.25; cloth binding, $5.75.

Carrier telephony is being used in increasing numbers of applications by telephone companies and other utilities as an economical and practical medium to provide for increased service requirements. The applications will continue to increase with the design of exchange-type carrier systems.

In order that satisfactory operation of these equipments can be realized, personnel must acquire a knowledge of the principles of carrier techniques.

The author, a member of General Telephone Service Corp., is well qualified to present the information contained in this text, having had over 30 years of practical experience in the communications field and now serving on the radio engineering staff.

Early chapters cover telephone carrier definitions, wire transmission principles and practices, carrier system fundamentals, modulation and demodulation processes, and electrical filters.

Later chapters discuss topics associated with carrier system operations, carrier transmission and signaling features, cable carrier system, and carrier applications to radio.

This volume is available through TELEPHONY.

Licensed Telephone Technicians

at your FINGERTIPS

for mobile radio... microwave...carrier ...repeaters, etc.

HOW TO TRAIN YOUR TECHNICIANS FOR ELECTRONIC MAINTENANCE

Here is a proven plan for providing training in electronics for your present technical staff. The great development of electronic devices for use in telephony makes it imperative to mentally "re-tool" your men.

Many telephone companies have enrolled their technicians for training. The West Coast Telephone Company selected our Employers' Plan for training their men. One group has completed its training and a second group is well under way. In less than a year they have acquired a group of experienced telephone technicians who know electronics.

For full details on our Employers' Plan send for a free copy of our illustrated booklet.

Accredited by: The National Home Study Council

send for your FREE COPY today!

Fill out the coupon for your Free copy!
Cleveland Institute of Electronics
4900 Euclid Ave., Dept. TE-55
Cleveland 3, Ohio

Please send full information on your Employers' Plan for training technicians.

NAME _____

POSITION _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____

FOR 1 WITH GENERAL CABLE STALPETH

General Cable Stalpeth: finest exchange area cable available for your outside plant · more guaranteed pairs · unmatched transmission characteristics · sheath uniformity · lighter, stronger, with a choice of splicing methods for lower on-the-job installation costs · most sizes available from stock, also available are composites and combinations · double sheath (DS Stalpeth) for direct earth burial. **Video Pairs:** be sure the cables you install today will meet the demands of new business tomorrow. General Cable Stalpeth, with video pairs installed now makes your plant ready to enjoy the revenues from closed circuit TV, remote TV pickup, microwave links and data transmission...without costly future expansion. **Service:** Multi-plant facilities assure prompt deliveries · Laboratory and engineering personnel are available for consultation. General Cable Corporation, 730 Third Ave., New York 17, N. Y., Distributed by: Automatic Electric Sales Corp., Northlake, Ill.; Leigh Sales Corp., 427 W. Randolph St., Chicago 6, Ill.

GCC

GENERAL CABLE CORPORATION

Courts and Commissions

Wyo. Commission Docket Open In Area Definition Case

The Wyoming Public Service Commission on Feb. 6 kept the docket open in the case involving a request by the United Telephone Co. of the West, Scottsbluff, Neb., to have its Wyoming service territory geographically defined.

On Nov. 18, 1960, the United company filed for a certificate of public convenience and necessity to serve certain areas in Wyoming. It is reported that at that time, United learned the Wyoming commission, in amendments to the certificate of the Chugwater Telephone Co. in August, 1958, and in February, 1960, had assigned to Chugwater an area in which subscriber-owned lines were connected to exchanges of the United company.

It is said that notification of this territory assignment had not been given to United; therefore, the company claimed the area in its Nov. 18 filing for a certificate. An attempt was made by United to reach an agreement with the Chugwater company to release the territory in question. However, no agreement could be reached, and the Chugwater company entered a protest with the Wyoming commission, and it was heard on Jan. 27.

In its order of Feb. 6, the Wyoming commission took the attitude that since none of the people in the disputed area appeared at the hearing, they were satisfied with remaining on subscriber-owned lines; and since the territory had already been awarded the Chugwater company, it had no way of knowing which company they would prefer, if they decided to accept commercial company service.

The commission decided to continue to regard the disputed area as the territory of the Chugwater company, and ordered that the docket be kept open for future consideration.

Southwestern States Gets 3 Rate Increases in Texas

The Southwestern States Telephone Co., Brownwood, Tex., was granted increases as follows in local rates in January in the Texas cities of Ballinger, Grapevine and Junction, all dial-operated:

	Old	New
Ballinger—2,038 stations		
One-party business	$8.00	$9.20
Two-party business	6.50	7.50
One-party residence	5.00	5.75
Two-party residence	4.00	4.60
Four-party residence	3.00	3.45
Grapevine—1,770 stations		
One-party business	$6.50	$8.00
Two-party business	5.00	6.25
One-party residence	4.00	5.00
Two-party residence	3.50	4.00
Four-party residence	2.50	3.00
Junction—1,225 stations		
One-party business	$8.10	$10.00
Two-party business	7.45	9.00
One-party residence	4.40	4.85
Two-party residence	3.70	4.10
Four-party residence	3.40	3.75

Two New York Companies Get Rate Increases

The New York Public Service Commission has accepted a tariff amendment filed by Pattersonville Telephone Co., Rotterdam Junction, under which its rates will be increased by $4,500 annually effective Feb. 15.

The new charges result from the initiation of toll-free service between the four areas served by the company at Rotterdam Junction, Pattersonville, Lower Rotterdam and Hoffmans and the Amsterdam exchange of New York Telephone Co.

In 1956, the company began toll-free service between each of these areas and New York Telephone Co's. Schenectady exchanges.

The company serves about 700 stations. It is estimated that the elimination of the 15-cent toll on calls to Amsterdam will reduce company revenues by about $1,500 annually. This will be offset by the basic rate increases aggregating about $4,500, giving the company a net revenue gain of about $3,000 with which to meet higher operating costs.

•

Also in New York, the commission has accepted a tariff amendment filed by Ausable Valley Telephone Co., Keeseville, designed to increase its rates by $24,100 annually, effective Feb. 15.

The company serves about 2,500 stations through dial exchanges at Keeseville and Wilmington and through a manual exchange, soon to be converted to dial operation, at Ausable Forks.

In filing its new tariff, the company reported that its operating expenses for the next 12 months will exceed those of the year ended last Sept. 30, by almost $55,000. Its new rate schedule is designed to produce about $24,100 additional annual revenue.

Voice Opposition to Kansas' Proposed Rate Law Change

A Kansas legislative bill to make original cost of equipment, less depreciation, the basis for determining utility rates would endanger utility service throughout the state, it was testified by public utilities officials at a hearing conducted recently in Topeka by the Kansas House public utilities committee.

The proposed legislation was opposed by more than 50 executives of utility companies.

Hardin Smith, vice president and Kansas general manager of Southwestern Bell Telephone Co., said the proposal would reduce utility earnings and impair service. "We feel that this bill would bar the state commission from making a fair determination of rates," he said.

James L. Grimes Jr., counsel for Kansas Power & Light Co., said the present law on factors to determine rates is fair and should not be replaced.

W. C. McCarthy, manager of rates for the Kansas City Power & Light Co., said the measure in question could cause an increase in the rates of Kansas customers and make it difficult for the firm to expand.

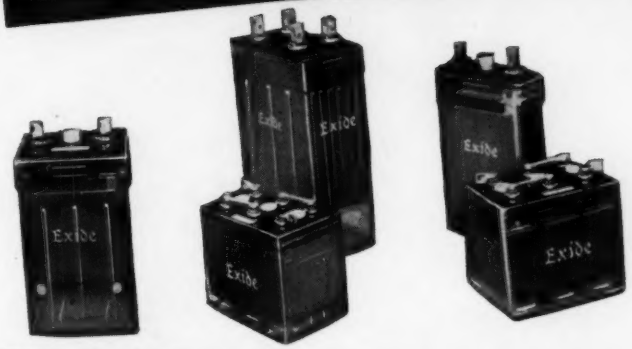
The proposed legislation was sponsored by Rep. Hubert Fatzer of Fellsburg, vice chairman of the House committee.

Recent controversy in Kansas over original cost versus "fair value" for computing a firm's property to determine rate bases has been focused on a case involving the Kansas Corporation Commission and Southwestern Bell (TELEPHONY, Jan. 28).

Shawnee County District Court held

(Continued on page 42)

Broadest battery line
Pasted plate Tytex with Silvium* or calcium, long-life Exide-Manchex Planté with Silvium, low-maintenance pocket positive nickel-cadmium, and the new 20-year Exide-Ironclad tubular with Silvium.



Most advanced rectifiers
Use silicon diodes for highest efficiency. Range of sizes for all applications.

Coast-to-coast service
Over 200 factory-trained Exide battery and rectifier specialists—fast, capable.

THREE FACTS ABOUT BATTERY ECONOMY

1. Each application has its own requirements

There is no one battery that gives the greatest economy in all applications. But there is one best battery for your application.

2. Rectifiers should match the batteries

It's important that they have enough capacity, but it's wasteful for them to have too much. Proper sizing is an engineering job.

3. Capable service keeps cost down

It prolongs the life of your batteries and rectifiers. Insures lowest cost per year of use. Should be done by trained men.

Only Exide offers the complete power package

This includes batteries, rectifiers and service. It's your easiest way of insuring maximum economy. Write for detailed information. Exide Industrial Marketing Division, The Electric Storage Battery Company, Philadelphia 20, Pa.

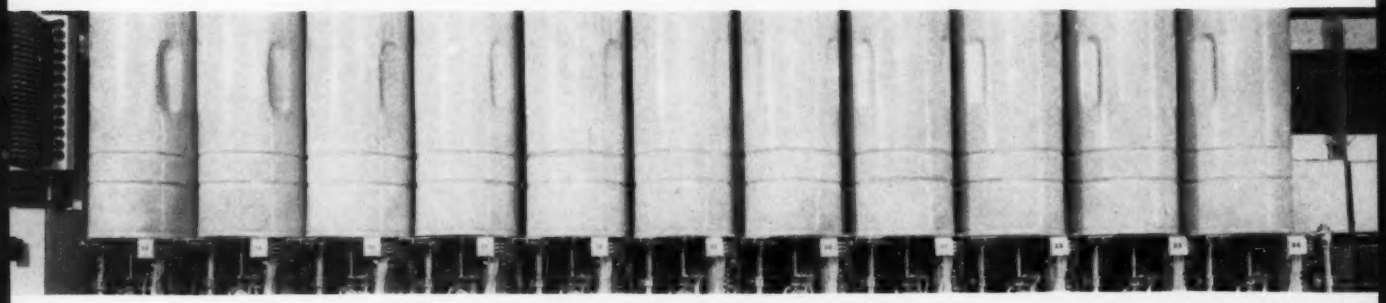
**Silvium is Exide's patented corrosion-resistant grid alloy.*

Exide®

INDUSTRIAL MARKETING DIVISION (ESB)
The Electric Storage Battery Company

- 2L5N numbering
- Intertoll dialing with the latest supervisory standards
- Easy adaptation to Direct Distance Dialing
- Economical expansion with simple jack-in equipment
- Easy adaptation to automatic toll ticketing—and Strowger ticketing equipment works directly into accounting machines without converters
- Direct dial control—no delays for "common" equipment
- Most modern, fastest information boards

- Automatic Time Announcing
- Automatic Weather Reporting
- Automatic Intercept Announcing
- Banks and quick-change wipers in plain view—easy to see and reach
- Low maintenance; fast call tracing
- Simplified checking—each switch and its control relays mounted as a unit
- Your choice of terminal-per-station or terminal-per-line operation
- Either frequency-per-group or frequency-per-terminal, with terminal-per-station operation
- Trunk repeaters for carrier, microwave, physical, or composite circuits
- Full-feature toll boards—cord-type or cordless
- Fire-reporting systems—manual and automatic
- Quick, easy testing of lines for leaks, grounds, or foreign battery, with the Automatic Line Insulation Routiner
- Remote testing of unattended offices
- Fully automatic alarm systems within office and at remote points
- "Four-wire" toll switching
- Toll restriction for P-B-X and P-A-B-X systems



the best decision, Harry—

Strowger will meet your future needs!"

Wayne Leonard* is a funny guy. He insists that he doesn't sell dial equipment. Wayne says that he sells the solution to future communications needs. And if you think that's odd, just listen to the way that he sells our switching equipment...

First, Wayne urges the customer to be cautious. He reminds the telephone man that the system installed today may have to trunk into different types of equipment and provide new services tomorrow. Then comes the clincher—he proves that Strowger is more than a match for the future. How? By simply explaining the many modern features that Strowger can provide (listed above).

Are you planning a dial conversion? Then get in touch with us. We'll send *your* AE representative in to help you solve your dial conversion problems. He can give you the complete Strowger story. And, he can provide you with information on how to finance Strowger dial equipment. To contact your AE representative, just write Automatic Electric Sales Corporation, Northlake, Illinois. In Canada, Automatic Electric Sales (Canada) Ltd., 185 Bartley Drive, Toronto 16.

**District Manager, North Central District, Automatic Electric Sales Corporation*

AUTOMATIC ELECTRIC

Subsidiary of

GENERAL TELEPHONE & ELECTRONICS

GENERAL SYSTEM

earlier that the commission should have considered the fair value of the telephone company's property. The commission has appealed to the Kansas Supreme Court.

The Bell company asked a rate increase of 5.8 million dollars, using the fair value system, but the commission allowed only 3.5 million dollars, using the original cost basis.

Minn. Company, Operating At Deficit, Granted Raise

The Duluth, Missabe & Iron Range Railway Co., Two Harbors, on Feb. 14 was granted permission by the Minnesota Railroad & Warehouse Commission to raise rates.

The company, which operates exchanges at Two Harbors, Ely, Aurora, Hoyt Lakes, Babbitt, Tower and Knife River, serving approximately 7,456 local, 1,015 rural and 133 switching stations, last had a rate increase in May 1954.

Since that time, over one million dollars has been added in new plant, wage increases have been granted, and costs have risen to the point where the DM&I company has been sustaining a yearly loss.

The commission said that the company had asked, in its current rate application, for a minimal rate of return on invested capital, one, it said, "that is not considered reasonable, but which (the DM&I) company expects to live with, and (it) expects, through the improvement of the economy in the area served by it, to gradually improve its net income in the future."

Under its old rates, the company had operating revenues of $679,741, giving it a yearly loss of $43,738. With new rates, which are effective after Mar. 31, the company will have operating revenues of $800,809 and a net income of $31,636. This will give it a 1.52 per cent return on its current value rate base of $2,071,552.

Present and approved rates are as follows:

*Ely, Two Harbors (1,751-2,500 stations)**

Business	*Present*	*Approved*
One-party	$7.10	$9.75
Two-party	6.00	8.50
Four-party	5.50	7.50
Multi-party rural		5.75**
0-4 miles	4.00	
Multi-party rural, 4-8 miles	4.25	
Multi-party rural, 8-12 miles	4.50	
Residence		
One-party	3.55	5.25
Two-party	2.95	4.25
Four-party	2.60	3.25
Multi-party rural, 0-4 miles	2.75	4.75**
Multi-party rural, 4-8 miles	3.00	
Multi-party rural, 8-12 miles	3.25	

*Approved rates also apply at Knife River.
**Applies to multi-party rural service in general.

Present rates also include a schedule, as follows, for the special rate areas:

Winston and Section 30 Mining Location, served by Ely exchange:	
Business	
One-party	$8.25
Four-party	5.50
Residence	
Four-party	2.60

Present and approved rates for Aurora, Babbitt, Hoyt Lakes and Tower are as follows:

	*Present**	*Approved Babbitt and Tower 0-850 stations*	*Approved Aurora and Hoyt Lakes 851-1750 stations*
Business			
One-party	$6.10	$7.75	$9.00
Two-party	5.25	6.75	7.75
Four-party	4.75	6.25	7.00
Multi-party rural, 0-4 miles	3.75	5.50**	5.50**
Multi-party rural, 4-8 miles	4.00		
Multi-party rural, 8-12 miles	4.25		
Residence			
One-party	3.05	4.75	5.00
Two-party	2.70	4.00	4.00
Four-party	2.35	3.00	3.00
Multi-party rural, 0-4 miles	2.50	4.50**	4.75**
Multi-party rural, 4-8 miles	2.75		
Multi-party rural, 8-12 miles	3.00		

*Present rates are for all four exchanges.
**Applies to multi-party rural service in general.

Special rates, which are presently charged at the Mesaba and Stephens, Weed and Perkins Mining Locations, served by the Aurora and Hoyt Lakes exchanges, are as follows:

Party line business	$6.10
Four-party residence	3.35

Although the company, at present, has no exchanges which serve 2,501 stations and over, rates were established in this group as follows:

Business	
One-party	$10.25
Two-party	9.00
Four-party	8.00
Multi-party rural	6.25
Residence	
One-party	5.50
Two-party	4.50
Four-party	3.50
Multi-party rural	5.00

Acquire Capital Stock in Wis.

The General Telephone Co. of Wisconsin has been authorized by the Wisconsin Public Service Commission, it was reported on Feb. 9, to issue common stock with a par value of $125,000 to buy the capital stock of Door County Telephone Co., Madison, owned by General Telephone & Electronics Corp.

DiSalle Seeks Revision of Ohio Rate-Making Formula

The revision of Ohio's utility rate-making formula was advocated, it was reported on Feb. 14, by Governor DiSalle in a special message to the state legislature.

He proposed that the state's present rate-making formula — "reconstruction cost new, less observed depreciation" (RCN) — be changed to one giving equal weight to RCN and "fair value." A similar proposal was rejected by the Ohio legislature two years ago.

Gov. DiSalle declared that such a change "would help reduce the tremendous advantage" held by utilities in Ohio and "would give the consumer at least a 50 per cent better break than he has today."

The governor charged that RCN is an "unfair and unrealistic approach" to the rate formula problem.

Supporting the governor in his fight against RCN is the Ohio Municipal League, representing cities which usually battle against rate increases. Also favoring the proposed change are the two Democrats who form a majority of the Ohio Public Utilities Commission.

When DiSalle first advanced his proposal two years ago, the commission was controlled by Republicans. Only Edward N. Kenealy of Cleveland backed the governor's stand.

Mr. Kenealy, now PUC chairman, will be joined in opposition to RCN by Frances McGovern of Akron. Two years ago, she was a state representative and a sponsor of the governor's legislation.

Everett H. Krueger Jr. of Columbus, the minority member of the present commission, has taken a position that some modification of the RCN formula may be called for, but has opposed the

WE'RE REACHING INTO SPACE

Bell Laboratories research with chilled ruby amplifiers speeds the day we may telephone via satellites

A strange combination of Nature's forces at Bell Laboratories foreshadows the day when world-wide phone calls may be relayed via man-made satellites orbiting the earth. It is a union of synthetic rubies and extreme cold, making it possible to amplify microwave signals from these satellites clearly.

Synthetic rubies possess an extraordinary property when deeply chilled and subjected to a magnetic field. They can be excited to store energy at the frequencies of microwave signals. As a signal passes through an excited ruby, it releases this energy and is thus amplified a thousandfold.

Bell Laboratories scientists chose a ruby amplifier because it's uniquely free of "noises" that interfere with radio signals. For example, it doesn't have the hot cathodes or hurtling electrons that generate noise in conventional amplifiers. It is so quiet that only the noise made by matter itself in heat vibrations remains. But at a temperature close to absolute zero, this also is silenced. Even very faint signals from satellites can be clearly amplified and studied for their possibilities.

Bell Laboratories scientists were first to discover that matter itself generates electrical noise. They also discovered that stars send radio waves, and thus helped found radio astronomy. It is particularly fitting that the same scientists, in their endless research on noise, should now battle this number-one enemy of telephony in the dramatic new field of communication via satellites. The ultimate goal, as always, is the improvement of your Bell System communications services.

BELL TELEPHONE LABORATORIES

WORLD CENTER OF COMMUNICATIONS RESEARCH AND DEVELOPMENT

more radical position of the Democrats.

Opposing the proposed legislation, telephone, electric and gas concerns contend that RCN enables the Ohio companies to provide better than average service and has kept rates in the state below those charged in other states.

FCC OK's TELPAK, New AT&T Point-to-Point Service

The American Telephone & Telegraph Co.'s offering of TELPAK service, which will allow large industrial and government subscribers to rent broad "electronic communications highways," instead of a number of individual private lines, was approved by the Federal Communications Commission on Feb. 15, to become effective Feb. 16 (TELEPHONY, Jan. 28).

At the same time, the commission denied Motorola Inc.'s petition to suspend AT&T's TELPAK tariffs, but delayed a decision on whether to investigate fairness of the tariffs.

Blocks of transmission circuits between specific points, such as a company's headquarters in one state and a factory in another, will be offered through AT&T's TELPAK service. The blocks come in four sizes—from the smallest with 12 "voice grade circuits," which will be capable of carrying 12 transmissions simultaneously, to the largest, which will have 240 circuits.

These channels can provide telephone, teletypewriter and facsimile or other transmission uses. TELPAK will be more flexible and may be cheaper for larger subscribers than individual lines, AT&T said.

The tariff lists charges ranging from $15 a mile per month for a block of 12 circuits, to $45 a mile per month for a block of 240 circuits.

In addition to these rates, which only cover the use of the channels, there will be installation charges, and monthly fees, for sending and receiving equipment. These fees will vary with the type and amount of equipment.

Florida Company Asks Raise

The Florida Railroad & Public Utilities Commission on Mar. 6 will hold a hearing on the rate request of Gulf Telephone Co., Perry. The company is asking to increase its rates and charges to earn a rate of return of 8 per cent on its properties.

Incorporate in Arkansas

The Sulphur Springs (Ark.) Telephone Co. has filed articles of incorporation. Stockholders are M. Ruth Bryson, William J. Bryson and W. K. Aubrey, all of Sulphur Springs.

Among those present at Chicago's Western Society of Engineers meeting on Feb. 8 were (seated, l. to r.): Illinois Bell Telephone Co. plant supervisor Paul T. Blatchley; A. F. Birmingham, AT&T staff supervisor of Springfield, Ill., and the speaker; S. W. Tucker, maintenance engineer of Illinois Bell; and E. N. Asmann, general statistician, also of Illinois Bell. Standing at left: O. L. Dodge, AT&T division plant superintendent; and WSE President Raymond D. Maxson, formerly senior vice president of Commonwealth Edison Co. Seated, from rear center (l. to r.): area plant manager B. C. Hurley of AT&T; W. V. Sayner, AT&T, Chicago, staff supervisor; and Virgil E. Gunlock, Chicago Transit Authority chairman. Standing at right: AT&T Kansas City, Mo., staff supervisor W. J. Coffey; R. C. Reno, editor of TELEPHONY; and G. E. Hanson, AT&T district superintendent of Springfield, Ill.

Communications Men Hear WSE Management Program

Telephone and communications engineers and executives virtually took over the Western Society of Engineers in Chicago on Feb. 8 on the occasion of the society's first management division program.

A. F. Birmingham of Springfield, Ill., staff supervisor of American Telephone & Telegraph Co., spoke on "Index Numbers as Tools of Modern Management." He was introduced by Otis L. Dodge, division plant superintendent of the AT&T company in Chicago.

Among the special guests were:

Frank D. Reese, president of Automatic Electric Laboratories.

Hubert Tremblay, manager of marketing and sales, Communications Systems Department, ITT-Kellogg.

Bailey C. Hurley, AT&T area plant manager at Kansas City, Mo.

Walker J. Coffey, staff supervisor in the AT&T area plant manager's office at Kansas City; Stanley W. Tucker, maintenance engineer of Illinois Bell Telephone Co.; Paul Blatchley, plant supervisor of Illinois Bell.

Maurice W. Lane, superintendent of manufacturing engineering of Western Electric's Hawthorne Works.

Oscar F. Gilbertson, assistant superintendent of equipment engineering of Western Electric.

AT&T district plant superintendents H. L. Stucky of Minneapolis, Minn.; Clarence Link of Omaha, Neb.; George E. Hanson of Springfield, Ill.; and S. M. Arnold and J. E. Greek of Chicago.

Almost half the capacity audience is estimated to have been communications engineers and executives. Manager of the meeting was William V. Sayner, AT&T staff supervisor at Chicago.

Name Karber, Reappoint Colter to Ill. Commission

James W. Karber has been appointed by Gov. Otto Kerner, as a member of the Illinois Commerce Commission, subject to approval of the Senate Executive Committee.

Mr. Karber, 46, of Ridgway was to succeed Commissioner J. G. VanKeuren of DuQuoin, whose term is expiring.

At the same time, the governor reappointed Commissioner Cyrus J. Colter of Chicago. Both appointments are for five-year terms.

The governor's office said that George R. Perrine of Aurora would remain as chairman "for the time being." The term of Commissioner Perrine, who was originally appointed eight years ago by Gov. William G. Stratton, does not expire until 1963.

Colter, a Democrat and VanKeuren, a Republican, were appointed in 1951 by Gov. Adlai Stevenson and reappointed by Governor Stratton in 1956. Colter was an assistant commissioner before being named commissioner.

Mr. Karber's appointment adds another Democrat to the commission.

The ICC will then be composed of three Democrats, Colter, Reichman and Karber—and two Republicans—Perrine and Simpson. Simpson's term also expires in 1963.

PRODUCT DEPENDABILITY *is built into* Phelps Dodge Aerial & Duct Telephone Wire & Cable!

In every Phelps Dodge aerial and duct telephone wire and cable, dependability of product is recognized as the first requirement for satisfactory service.

Phelps Dodge achieves product dependability by combining years of manufacturing experience with the most modern research and development facilities throughout its fabricating process. This controlled method of building in quality *during* manufacture assures customers reduced maintenance costs and trouble-free service—important advantages that only true product dependability makes possible.

Phelps Dodge will gladly help you fill your aerial and duct wire and cable requirements, recommend the correct constructions to fit your needs. Just call your nearest Phelps Dodge sales office.

PHELPS DODGE COPPER PRODUCTS
CORPORATION

SALES OFFICES: Atlanta, Birmingham, Ala., Cambridge, Mass., Charlotte, Chicago, Cincinnati, Cleveland, Dallas, Dayton, Denver, Detroit, Fort Wayne, Greensboro, N. C., Houston, Indianapolis, Jacksonville, Kansas City, Mo., Los Angeles, Memphis, Milwaukee, Minneapolis, New Orleans, New York, Philadelphia, Pittsburgh, Portland, Ore., Richmond, Rochester, N. Y., San Francisco, St. Louis, Seattle, Tampa, Washington, D. C.

Sound-Powered Telephone Used in Blast Furnace Area

Planning to increase efficiency of manufacturing operations and maintenance projects, and to improve safety controls affecting both, Republic Steel Corp. assigned top priority to improving communication between work groups in its blast furnace areas.

In addition to extensive standard telephonic communication, the system developed at Republic Steel utilizes sound-powered wire units that maintain direct voice contact with workers in remote areas where toxic hazards may exist. This sound-powered communication has proved particularly effective in areas where conventional telephones are impractical, either because of working conditions or because of infrequent use.

One of the first Republic Steel mills to supplement its standard telephone network with the sound-powered wire units—or Maskfones—was the Gadsden plant in the southern steel district.

This occurred early in 1959 when E. L. Jones, blast furnace superintendent, suggested to M. C. Cunningham, safety supervisor, that "information be obtained on a suitable communication system for use between work groups in blast furnace areas where regular telephones are not available."

Shortly after, tests were made, and the Maskfones were put into immediate use.

In fact, a number of the sound-powered systems, supplied by Mine Safety Appliances (MSA) Co., Pittsburgh, are in use at the Gadsden plant, and several are being employed at other Republic Steel plants.

Safety supervisor Cunningham said the self-contained units are being used in gaseous areas at Gadsden to carry on two-way voice communication with watchers assigned to jobs where vision is obscured for any reason. He also commented that the equipment is employed for point-to-point communication around blast furnaces, where it is also necessary to use breathing apparatus.

Mr. Cunningham said the Maskfone is usually employed with MSA's Chemox oxygen breathing apparatus, equipped with an All-Vision facepiece and Cleartone speaking diaphragm, but is also available for communication without masks.

He said the Maskfone has proved an effective method of secondary communication from furnace top to cast shed or ground in rare instances when permanent telephones became useless during repair projects. "In fact," he said, "it was this particular activity that prompted the request for a 250-foot long cable with the units, instead of the standard 125-foot reel."

A sound-powered system is employed for point - to - point communication around gaseous blast furnace areas at Republic Steel. Here, voice contact is maintained through an MSA Maskfone. The worker in the gaseous area is also equipped with a Chemox oxygen breathing apparatus.

He said the Maskfone has considerable value where work is in progress on furnace elevations and no other method of communication is available. Typical examples are the repair or operation of goggle valves under conditions where gas is present.

Also, the MSA units have proved valuable in maintenance of large gas mains where crews are often out of visual communication. Without the sound-powered wire systems, these operations alone would require use of several watchers to maintain adequate safety precaution for working groups.

A blower employs the MSA Maskfone as a secondary means of communication to workers on top of a furnace at Republic Steel. The sound-powered wire unit maintains direct voice contact with workers in all remote areas where toxic hazards may exist.

Brainstorming Florida Group Lists Black Telephone Uses

"What should telephone companies do to cope with an excess of black telephones occasioned by the subscribing public's increasing purchases of colored instruments?" That is the question "brainstormed" over in a recent meeting of the Central Florida Chapter of the American Society of Training Directors.

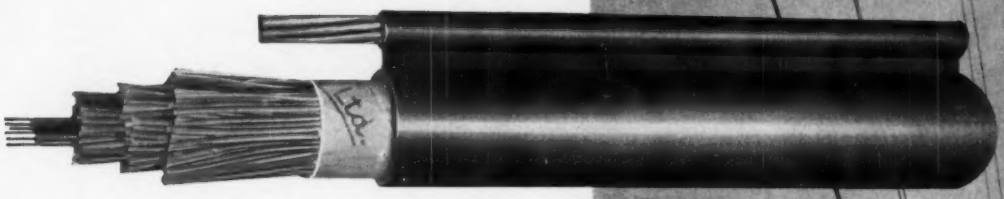
J. K. Galloway, president of Winter Park (Fla.) Telephone Co., sent us the suggestions resulting from the session, and observed: "Although some of the suggestions are certainly impractical, many of them, or adaptations of them, could be used to solve such a problem." This was true, he said, despite the fact that the eight participants were not directly associated with the telephone industry and possessed only a rudimentary knowledge of it. (Brainstorming, Mr. Galloway points out, involves letting a group of two or more people fire, at a recorder, solutions to a given problem as fast as the ideas occur within a limited period. The solutions are later evaluated at a more deliberate pace.)

The training directors' suggested uses for black telephones were:

(1) Repaint them.
(2) Apply plastic color covers.
(3) Conduct a "Black Is In Style" campaign.
(4) Sell two colored and one black telephone for the price of two colored telephones.
(5) Export them.
(6) Promote as a teen-ager telephone teller-trainer.
(7) Make toys out of them.
(8) Construct teller-trainers kits and give them to the local schools to improve the teen-agers' manners.
(9) Convert them to intercom telephones.
(10) Install them in industrial vehicles such as trucks, tractors, etc., as mobile telephones.
(11) Conduct a campaign to put two telephones in every car.
(12) Trade them in on new colors.
(13) Use them for door stops.
(14) Sell them to antique dealers.
(15) Use as bookends.
(16) Increase the rental of the colored telephones.
(17) Decrease the rental of the black telephones.
(18) Convert them into transistor radios and sell them to the public.
(19) Convert them into paystations and install more paystations in the area.
(20) Initiate a "Two-Tone Telephone Campaign"—black base with a white hand set, and the black hand set with a white base, etc.
(21) Make into lamps.

HITACHI

This is the Gourd-type cable — a new shape that contains a suspension strand, a communication line, and the answer to several problems!



This unique local or exchange area cable developed by Hitachi derives its distinctive "gourd shape" from the polyvinyl chloride sheathing that totally encloses the polyethylene-insulated communication line as well as its parallel suspension strand. It can be used in all the applications of conventional PE-insulated PVC sheathed cable and, in addition, is suitable for installation on steep grades where paper-insulated lead sheathed cable could not be used.

Another notable feature of the gourd-shaped cable is that it dispenses with the need for hangers, making installation easier, cheaper and faster. It can be installed close to buildings and power lines with complete safety (the suspension strand can be grounded to reduce electrostatic induction in the latter instance), retains high transmission qualities under the most trying weather conditions, and successfully withstands attack by salt or airborne chemicals.

Communication Equipments

Hitachi, Ltd.
Tokyo Japan
Cable Address: "HITACHY" TOKYO

News on New Products

NEW TECHNIQUE IN DIRECTORY PRINTING—With the wink of a camera's eye all the labor, time and cost that formerly existed between the original subscriber's file card and the final printing of the telephone directory has been eliminated, the VariTyper Corp. has announced. In this case, "wink of a camera's eye" is not just a figure of speech. Actually, the new system, called FotoList, does wink its camera's eye, at great speed, reading the information on individual file cards and recording that information as a continuous, sequential listing on a negative from which the printing plates are made.

The new systems machine, developed and produced by the VariTyper Corp., has been in continuous operation with the U. S. government in the nation's capital for some years before its present release to industry and business at large. The U. S. Navy, Bureau of Ships, uses the FotoList system for the simplification and economization of its many listings and directory publications. The company states one of the system's outstanding features, aside from the fact that it eliminates typesetting, is that a single source file of information can be made to "spell out" a number of different types of publications. For example: One file of cards, each with a single line of information, such as, name, address, business and telephone number, can be electronically sorted or re-sorted to show the same names alphabetically by name, by street, or numerically by either street number or telephone number.

The otherwise wasteful duplication of source file information is eliminated together with the costly, time-consuming problem of setting metal type and maintaining it for each separate publication, the company states.

It said that the ingenuity and simplicity of the process lies in the fact that the very lines of information, contained on the source file cards, become the lines of type in the final printing, without setting type.

The publication of a telephone directory starts with the maintenance of subscribers' names and addresses on file cards which are constantly culled for deletions and changes plus the addition of new listings.

Heretofore, at publication time, the list would go to the typesetter who would translate the information on the cards into slugs of type for make-up of the individual pages. Proofs would go back for checking and new proofs, from corrected copy, would go back for re-checking. Final printing would be done from the metal type.

The FotoList has completely changed all of that, the company states. The same subscribers' card files are maintained as previously, with the single exception that the name and address, instead of being typewritten on an ordinary typewriter, is typed on a VariTyper Line Composer in the exact style of printer's type appearing in the finished printed edition.

At publication time, the cards are removed from their file drawers and loaded into the feeding mechanism of the FotoList. From there they are automatically, and at high speed, passed before a camera lens which records the individual lines of information on a negative, rolling in synchronization with the moving cards. VariTyper Corp. states the end result is a ready-for-plate negative showing the individual lines on the original cards as a perfectly aligned sequential list.

Perfect alignment is achieved with what the company describes as an ingenious engineering device. All FotoList cards are pre-punched with a hole at each end. During the typing operation "pin grippers" pass through the holes in the cards holding them securely in an exact predetermined position while the card is typed up. Thus all cards automatically bear their individual lines of information in the same exact position. The process is repeated during the filming operation with each card held with pin grippers when it reaches the camera lens. The result is perfect alignment as well as uniform line spacing, according to the company.

Savings made possible by the FotoList system are indicated, it is pointed out, when a rough estimate shows that a single drawer file of cards, used in the process, can eliminate a ton of metal type together with its cost of setting and composing.

Proof reading also is eliminated because the camera does not misspell or make typographical errors.

The company reports that the success of the FotoList system with the U. S. and Canadian governments was followed by similar successes in private enterprise.

Procedural systems experts and efficiency experts, it said, have made extensive studies of the system, realizing that a completely new concept of source files operation is at hand, whereby subscriber data, recorded for source files,

TELEPHONY PUBLISHING CORP.
608 S. Dearborn St.
Chicago 5, Ill.

Please have the manufacturer send me without obligation the literature indicated by the following numbers:

NP1556_____; NP1557_____; NP1558_____; NP1559_____;
NP1560_____; NP1561_____; NP1562_____; NP1563_____.

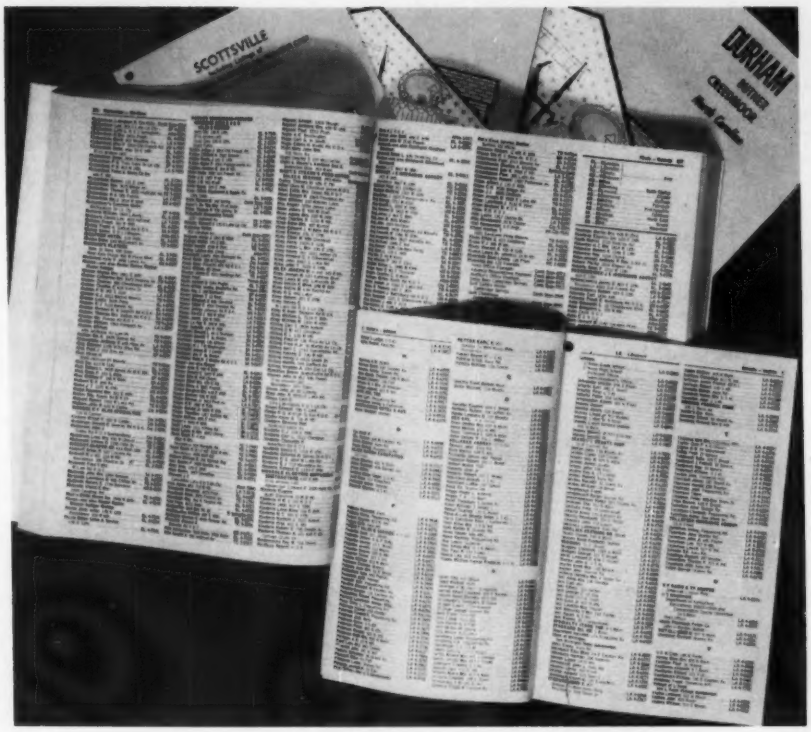
Name .....

Company .....

Street .....

Town and State .....

2/25/61



Directories produced by VariTyper Corp.'s "FotoList."

is typed in the style of type in which it is ultimately to be printed so that it might become its own ultimate line of type in the final publication. Request NP1556.

•

ELECTRONIC DATA PROCESSING SYSTEM—Burroughs Corp. has developed a new solid state electronic data processing system which, it states, overcomes the shortcomings of even the most advanced systems to date—wasted manpower and unused speed.

Announcing the Burroughs B5000 electronic information processing system, Ray R. Eppert, president, said the new system departs from traditional concepts of computer design to drastically cut programming time and problem-solving costs long associated with computer systems.

The B5000 is an ultra-high speed data processing system that automatically "adjusts to its own environment," schedules and keeps track of its own work load, and actually tells itself as well as its human operator how it's doing, the president said.

Scale models of the new Burroughs Corp. solid state B5000 information processing system are shown here in a large-scale configuration. Systems are available for any size scientific or business data processing job.

"But even more important," he continued, "the system strikes at the heart of operational problems that have troubled computer users for the past 15 years, retarding full, economical use of these valuable electronic tools."

In spite of their sometimes spectacular progress, computers have encountered some special problems of their own creation, resulting in unanticipated costs. Chief among these problems have been the difficulties of man-machine communication and the inefficient use of high-speed electronic system capabilities, Mr. Eppert observed.

"The computer industry, much like the automotive industry a few years ago, has been engaged in a horsepower race," he declared.

It is not unusual for a team of experts to spend months writing and "debugging" a computer program for a complex problem that only requires a few minutes to solve once all data is entered into the computer, he said.

"We felt it was time to stop and take stock. We wanted to get back to the basic objective of a computer: To solve problems without creating even bigger ones. High speed is vital to a computer; but it must be used continuously to pay off for the user," Mr. Eppert said.

"Computer engineering technology in providing high internal machine speeds far outstripped the ability to use this speed efficiently. And every time the speed was increased, it became even more difficult to communicate with the computer and control its behavior.

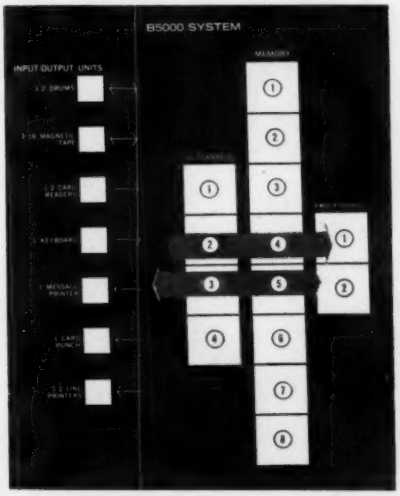
"Because users had to communicate with previous electronic computers in complex numerical codes, a language foreign to them, they devised highly complex methods to bridge the communications gap. In spite of these efforts, the excruciating detail of computer programming continues to tie up costly scientific, engineering and business talent."

The B5000, Mr. Eppert asserted, will drastically reduce programming costs because the system is designed to accept programs written in algebra (for scientific and engineering problems) or in English language statements (for business data processing).

The built-in ability to process programs written in the Common Business Oriented Language (COBOL) and Algorithmic Language (ALGOL), will be standard with every B5000 computer system.

The B5000, according to Mr. Eppert, also represents advances in several other areas of computer technology, as follows:

Permit full use of a computer with



Graphically illustrated here is the functional inter-relation of components in the new solid state Burroughs B5000 Information Processing System. The illustration shows a maximum system. Components may be deleted to form a system tailored to any size application in either scientific or business problem solution. Burroughs states the B5000 is the first system to allow such flexibility in size and function without the need to reprogram.

GENERAL MACHINE PRODUCTS COMPANY, INC.

Old Lincoln Highway at Pa. Turnpike, Trevose, Pa.

C-R POWER REEL

SLACK PULLER

CABLE FEEDER

GMPCo

AERIAL TENTS
CABLE BENDERS
CABLE BLOCKS
CABLE LASHERS
COAXIAL CABLE TOOLS
LASHING WIRE
CLAMPS AND GRIPS
PORTABLE & POWER REELS

Distributed by GraybaR ELECTRIC COMPANY

PRESSURE TESTING KIT

COMPOUND

B, C, D, E, & G CABLE LASHERS

Special Purpose Tools To Specifications — Catalog on Request

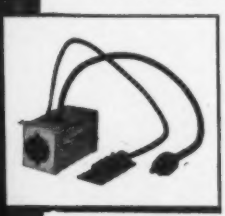
Over 600 various items of Line Construction Tools, Maintenance & Pressure-Testing Equipment in stock for immediate shipment

Where
LIGHTING
counts most
PRECISION
controls best

America calls 150,000 of these phone booths the warmest, brightest welcome anywhere at night.

Naturally, it's *automated light* . . . available only from Precision Multiple Controls. Miniaturized, fail-proof, a 2-component Precision photo-electric control will keep this bright voice in the night shining for years.

If you use light, it will serve you better — save you money — if it's *automated light* by Precision.



Call or wire for details

PRECISION MULTIPLE CONTROLS
233 Chestnut Street, Ridgewood, New Jersey
Pioneers in Photo Electric Lighting Controls

a minimum of human intervention. With computers the need for operator intervention during processing greatly increases the chance for error, mainly because humans are inclined to make mistakes. Because of a computer's high speed, an error may be compounded many times before it is discovered. To eliminate this possibility, the B5000 literally tells the operator what to do, will even advise him when he makes certain mistakes.

Permit expansion of the system without costly re-programming. The same program will run equally well on small, medium or large B5000 systems because the computer instantly recognizes the addition or deletion of system parts and automatically adjusts to the new configuration. Even if a second central processor is added, the user is spared the considerable expense of rewriting his computer programs. The computer may then simply perform the same jobs twice as fast.

Make practical the simultaneous solution of any two or more problems. Programs handled simultaneously can be varied — it is not necessary to run matched programs for concurrent operation. While printing out results of one job, the computer can perform computation on other entirely different problems and take in raw data on still another task.

The B5000 computer systems will rent from $13,500 to $50,000 a month, depending on the size of the system. Sale prices will range from $540,000 to $2,000,000. First deliveries will be made in 18 months. Request NP1557.

■

SQUIRT BOOM—A new aerial device that takes a workman 40 feet into the air, and known as the Series 8000 Squirt Boom, is being manufactured by Holan Corp. The new Holan equipment can be operated by one man from controls located in the bucket, the manufacturer states.

Balanced engineering permits mounting of the Squirt Boom unit on a 60 inch CA, 14,000-pound GVW chassis. Also incorporated are Holan-designed torsion bars—attached to the base of the body; and offset superstructure design, which help increase stability in all

operating positions, and the company says, make outriggers unnecessary.

The Fiberglas bucket, yoke and boom can withstand a 73,000-volt (ac) bucket-to-ground test. The boom, also of Fiberglas, by means of a double-acting hydraulic cylinder, extends 10 feet 7 inches from the end of the main boom, and can be stopped for work at any point in its travel.

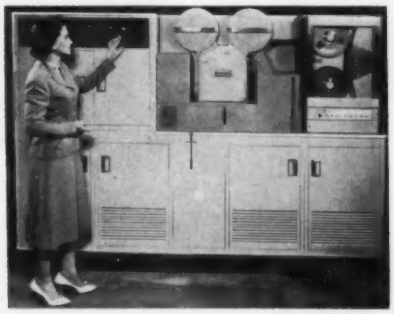
Hydraulic controls are located on the inboard edge of the bucket and on the superstructure; and the unit can also be operated from inside the cab, with the solenoid-controlled over-ride.

The Holan Squirt Boom rotates 360° in either direction, and the vertical operating range is 102°.

The bucket remains level by means of a leveling cylinder which works as a "slave" to a cylinder located in the superstructure. The leveling cylinder, located in the bucket yoke, is also used to move the bucket into stored position for travel. Request NP1558.

•

COMPUTER PRINT-OUT SYSTEM— The Recordak Corp. announces that its high-speed computer print-out equipment, the DACOM System, is ready for



market. The system's name derives from DAtascope Computer Output Microfilmer. DACOM will convert information from magnetic tape into plain language on microfilm at speeds of up to 20,000 characters per second, Recordak states.

DACOM is described as complementing modern computer equipment, and providing print-out speeds which will match computer output speeds.

For example, a complete page of data, containing as many as 8,064 characters, can be reproduced, Recordak says, "with graphic arts quality" in approximately one-half second, in a single 16-mm. microfilm frame.

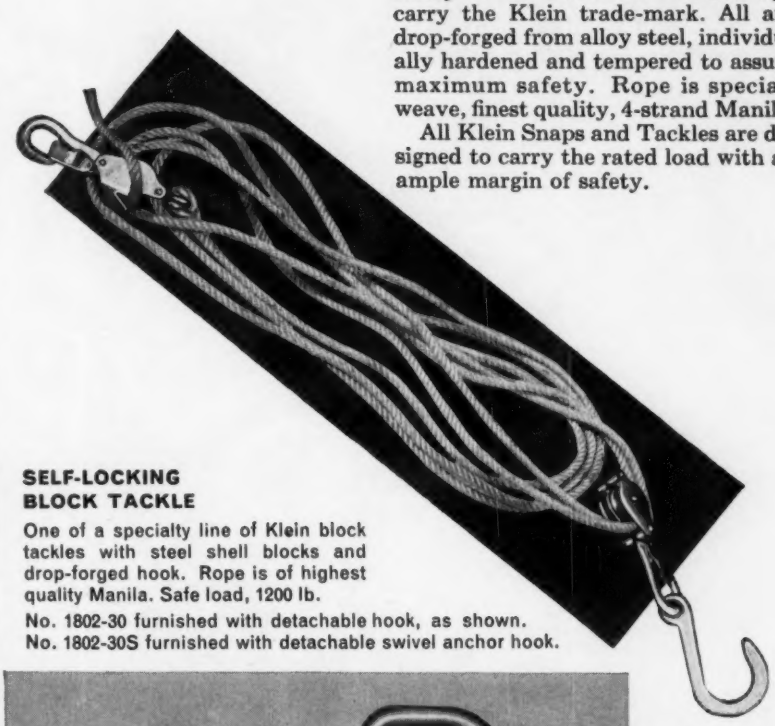
Any desired background format, such as a statement, bill, or an accounting form, may be optically combined with the output of information so that the data can be reproduced in final finished form.

Peripheral equipment for on-the-spot

MAXIMUM SAFETY in tackles and snaps

Whether it is a block tackle or a hand line, you're assured of maximum safety when the tackles and snaps carry the Klein trade-mark. All are drop-forged from alloy steel, individually hardened and tempered to assure maximum safety. Rope is special-weave, finest quality, 4-strand Manila.

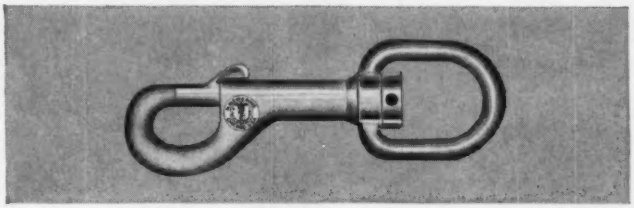
All Klein Snaps and Tackles are designed to carry the rated load with an ample margin of safety.



SELF-LOCKING BLOCK TACKLE

One of a specialty line of Klein block tackles with steel shell blocks and drop-forged hook. Rope is of highest quality Manila. Safe load, 1200 lb.

No. 1802-30 furnished with detachable hook, as shown.
No. 1802-30S furnished with detachable swivel anchor hook.



SWIVEL HAND LINE SNAP

The only drop-forged snap of this type on the market. Has swivel clevis and quick-acting plunger latch. Will take ¼-inch or lighter hand lines. Safe load, 750 lb.

No. 470

FREE TOOL GUIDE

Write for 103TG Tool Guide covering the complete Klein line.

ASK YOUR SUPPLIER

Foreign Distributor: International Standard Electric Corp., New York

Mathias KLEIN & Sons
Established 1857 — Chicago, Ill., U.S.A.
INCORPORATED
7200 McCORMICK ROAD, CHICAGO 45, ILL.

MAGNOLIA SPRAY-ON CHEMICALS

Saf-Glo Orange-Red Fluorescent

HIGH VISIBILITY SAFETY COATING

Here is the fast and easy way to do your safety painting and color coding. Saf-Glo is ideal on emergency vehicles, traffic control markers, road barricades, construction equipment, safety helmets, docks, tailgates, fire hydrants and distinguishers, machinery, emergency stations, high voltage positions, switch boxes and many other places designating danger areas which should be readily seen. For indoor or outdoor use on wood, metal or plastic. When used outdoors, apply a protective coat of our Saf-Gard to assure maximum durability of color and glass.

Full 16 oz. — 12 to the carton
CODE SG-1

THE SPRAY WAY IS THE EASY WAY

Safe-Gard Clear Plastic

PROTECTIVE TRANSPARENT COATING
Contains a Sun Screening Agent

Here is a transparent flexible acrylic coating that adheres to any surface — metal, wood, rubber, wiring, cloth, leather, plastic, paper or fibre. Saf-Gard waterproofs and is an excellent weather resisting insulation for ignition systems on all type vehicles, motors, and other wire connections such as TV antennas — prevents arching. Prevents corrosion of clean battery terminals and is a preservative for chrome, brass or copper. Also a protective coating for tools, documents, maps, book covers, blue prints, seat covers, etc. Protects outdoor paints from fading by screening harmful sun rays. Use over Magnolia Saf-Glo Hi Visibility Coating.

Full 16 oz. — 12 to the carton
CODE SG-0

MAGNOLIA CHEMICAL CO., INC.
CHICAGO • LAFAYETTE, IND. • TAMPA • DALLAS • LOS ANGELES

DISTRIBUTED BY

LEICH SALES CORP.
427 WEST RANDOLPH STREET
CHICAGO 6, ILLINOIS RAndolph 6-5441

high-speed film processing, and for continuous or selective hard-copy facsimile production from the film; and visual film reference work stations are also offered by Recordak, in order to provide a practical advantage and versatility.

According to the company, point-plotting can also be accomplished with its DACOM System photographically and at high speed. It is said, no overlays or descriptive labeling are required. Descriptions are automatically recorded by the DACOM System, which can vary between the plotting mode and typewriter simulation at a sustained speed of 15,000 characters per second.

At the first public showing of Recordak's DACOM System, in New York City, J. M. Arnold, president, commented, "With these new techniques of our DACOM System, we can offer film, automatically coded, for rapid retrieval and reference in business systems. This will simplify the handling of computer output by replacing voluminous paper with convenient film records." Request NP1559.

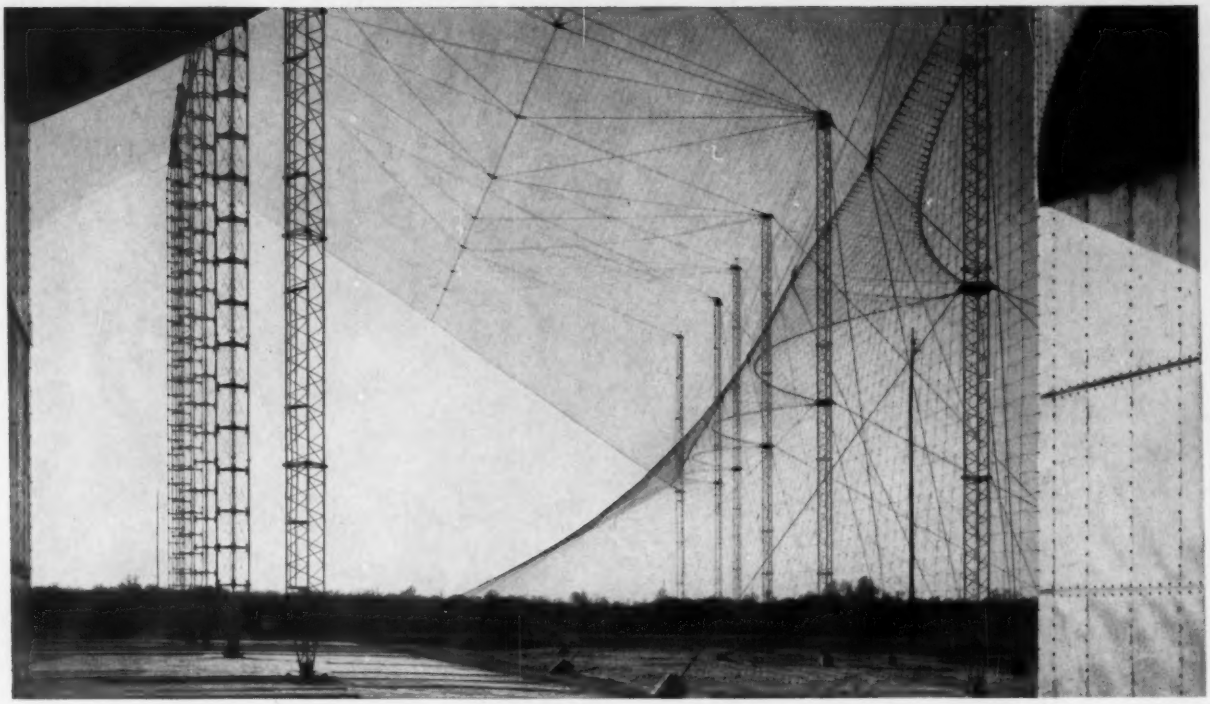
•

COMPACT TWO-WAY RADIO—General Electric has announced that it has engineered a new line of low-priced lightweight, compact two-way radios, using vacuum tubes and simplified circuits in a design which it says achieves lower battery drain than previously attained in tubed equipment.

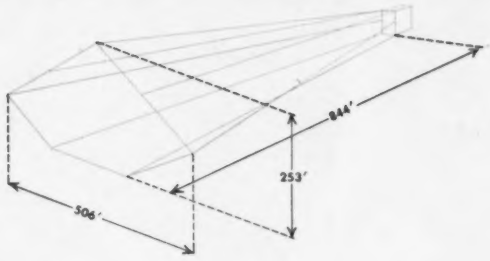
Kent J. Worthen, national mobile radio sales manager for G-E's communication products department, said 15-watt units are now in quantity production at the company's Lynchburg, Va., plant. They will be marketed immediately under the name "General Electric Pacer."

The Pacer is designed for operation in low band (25-50 mc.) and high band (150-174 mc.), and has full-quality vhf-fm audio, G-E states.

The G-E Pacer has 15 tubes and two transistors. When the 15-watt unit is "on", battery drain is 4.2 amperes. This is a full ampere less than 10-watt tubed units. Thus, the new equipment pro-



THE HORN of the ARMY'S BIG EAR



Made with Copperweld Wire

You're looking through the "inner ear" of one of the world's biggest hearing aids. It's the U.S. Army Signal Corps' TAHA—short for Tapered Aperture Horn Antenna. Located in Maryland, TAHA is a highly directional antenna aimed at Hawaii. It is an excitingly new development that reduces interference in long-range, high-frequency communications.

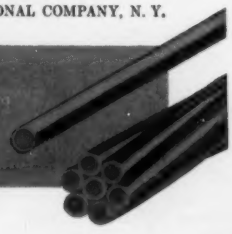
From the "feed house" or apex of the antenna system, a giant, cone-shaped wire-fabric horn reaches out 844 feet to scoop in long-distance radio signals. The horn, with a maximum height of 253 feet, is held aloft by 18 steel towers.

Here, as in many other important engineering projects, Copperweld Steel Company products were specified. And you can see why. Permanent strength and conductivity were vital requirements. The millions of feet of wire fabric in the horn were made with Copperweld Wire. In addition, more than 80,000 double-strand Copperweld preformed tie wires were used to assure proper and permanent spacing of each latitudinal and longitudinal wire in the fabric.

For antennas and towers of all types, Copperweld Wire and Guy Strand provide lasting, rust-proof strength. Each wire has a thick outer layer of copper molten-welded to a core of high-strength steel. The copper cannot flake, crack or peel. The strength of the steel core is permanent—rust and corrosion simply can't happen.

COPPERWELD STEEL COMPANY
WIRE AND CABLE DIVISION *Glassport, Pa.*
For Export: COPPERWELD STEEL INTERNATIONAL COMPANY, N. Y.

Copperweld® WIRE and STRAND



FREE!

Send for your FREE 1961 SUTTLE SUPPLY CATALOG *TODAY*— JUST OFF THE PRESS!

- A single source for thousands of telephone supply items, equipment, wire and cable, telephones, maintenance supplies. Completely revised—lots of new revenue-increasing products are included.
- 98 pages—clearly illustrated, with complete use data including sizes, specifications—**and prices!**
- The telephone industry's major **priced** catalog — a valuable tool for your profitable use.

SUPPLY IS LIMITED—SEND FOR YOURS TODAY!

Manufacturers, suppliers, and printers to Telephone Men

For further information, specifications or quotations on these telephone supplies— write, wire or telephone—

SUTTLE EQUIPMENT CORPORATION

401 N. 15th St., Lawrenceville, Ill.
Phone: Lawrenceville 782

135 S. La Salle St., Chicago 3, Ill.
Phone: DEarborn 2-3108

vides more power and more communications range with less battery drain. Special generators and heavy duty batteries are not needed, the company states.

The control section contains a transistorized power supply adaptable to 12-volt negative or positive ground electrical ground systems. This eliminates vibrators, getting rid of a major maintenance problem in tubed mobile radio equipment and contributing to greater reliability, according to the company.

The new design is the smallest in G-E's entire line of two-way communication units. It is smaller than the company's transistorized Progress Line models.

The General Electric Pacer model is 4¼ inches high, 7¾ inches wide and 12½ inches long, a total of 412 cubic inches. Miniaturized with installation in compact cars in mind, it was designed, G-E says, to fit under the dash of the newer, smaller vehicles now marketed, without cramping passengers. No separate speaker is required. An elliptical speaker is built in the front of the unit, so that extra space is not taken at the dash.

Lightweight, aluminum construction is used. The G-E Pacer weighs 10 pounds, including a newly-designed microphone and built-in speaker.

While circuits are simplified, several new components are reported to be used to achieve greater reliability. A new filter in the receiver lowers susceptibility to ignition noise, resulting in quieter communications with better voice quality. It helps the set differentiate between two competing incoming signals and eliminates the need for continual re-tuning. The improved selectivity gained in this way will be an advantage in split-channel narrow band operations where stations are close together in frequency, the company states.

Additional protection against nuisance calls and skip signal interference can be obtained through the installation of optional equipment, called "Channel Guard," which can be added in the field, G-E reports, with no modification to the basic unit. Provisions are included in the G-E Pacer for Channel Guard to be plugged in if needed.

Included in other optional equipment available is a provision for two-frequency transmit-and-receive. This allows two-channel operation where necessary.

Among new components are two new miniature tubes with 13.6 V. heaters, designed for mobile radio operation. The G-E Pacer is said to be the first two-way radio to employ the new tubes, which are part of the General Electric 7000 series.

Much of the audio complement has been developed around a power pentode

and high gain triode. This serves as a microphone preamplifier and limiter for the transmitter and as a combination noise amplifier and audio output in the receiver. An rf pentode tube drives the power amplifier to its full rated output.

New "U" shaped adjustable mounting brackets assure rapid under-dash or transmission-housing mounting. Elongated slots on the bracket are said to allow adjustment of the unit after the screws are affixed. Plug-in terminals on cable connections speed installations.

Because all of the unit is housed in one case containing transmitter, receiver, and speaker, installation is made easier and faster than in units where separate assemblies are used, according to the company.

Drawer-type construction permits the unit to slide out for easy service. The technician, G-E states, does not need to dismantle the mounting arrangement to provide routine maintenance.

Only one relay is used in the entire unit. There are plug-in connections to circuit boards and plug-in 0-3 volt dc metering.

Antenna equipment for the vehicle in which the unit is to be installed is furnished with the unit. Also supplied is the necessary cable for installation under the dash. Request NP1560.

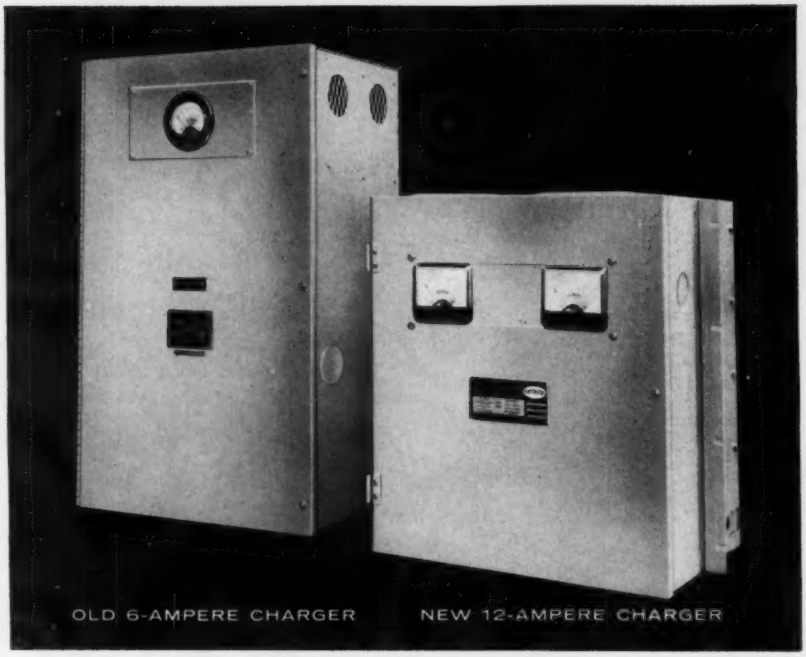
•

SPRAY-COATING RESIN APPLICATION—Minnesota Mining & Mfg. Co. (3M) states that its one-part epoxy resin powder, introduced last year as an aerated bed coating for insulating electronic and electrical parts, can be applied successfully by the spray method.

Spray application of 3M's "Scotchcast" electrical resin No. XR-5026, by means of a flocking-type gun, the company says, has advantages over other methods of application, particularly when the objects to be insulated require only partial coating, or require extensive masking.

Suited to this method are telephone equipment mounting racks, switch covers and boxes, transformer cans and covers, and other items requiring protective covering, or insulation on only one side, or over a particular area.

The company explains that articles to be coated are pre-heated to 350-450 degrees F., depending upon the heat capacity of the part and desired thickness of the coating. Spray equipment required must have a source of air pressure of 40 p.s.i. When sprayed on the hot object, the company states, particles of the resin adhere, melt and flow to form a uniform, smooth coating. By using a dust collector and spray booth system, the overspray, or unused resin,



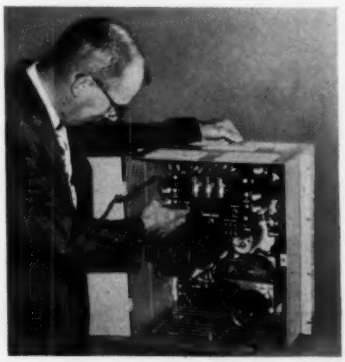
How telephone battery chargers have changed!

Twice the power, half the size!

Yes, these new Raytheon silicon battery chargers pack twice the battery charging capacity in half the space. But that's not all. They also provide excellent regulation (±1%) and noise-free output (30-millivolt filtering) with improved dependability.

These new solid-state designs use fewer components, minimizing possibility of failure through simplified design. They utilize conservatively rated silicon rectifiers which are non-aging and have extremely low power losses. In your exchanges, this means:

- greater operating efficiency
- longer life
- no adjustments
- space-saving advantages



SEE FOR YOURSELF...
write today for more complete details or—if you wish—ask to see the Raytheon telephone field representative in your area.

Raytheon Company, Commercial Apparatus & Systems Division, Keeler Avenue, South Norwalk, Connecticut.

RAYTHEON

RAYTHEON COMPANY

COMMERCIAL APPARATUS & SYSTEMS DIVISION

Here's the NEW CALCULAGRAPH "POSITIVE GUIDE" Tab Ticket Plate*

Assures Still Greater Toll-Timing Accuracy

This is the newly developed "positive guide" tab ticket plate that provides positive protection against misalignment of tab-size toll tickets without any loss of speed. Now you can completely eliminate inaccuracies due to improper registration of the toll time. What's more, this new ticket plate is interchangeable with existing plates. This means the change can be made in the field without disrupting operations on your switchboard. And it only takes a minute or two to do — it's that easy.

This new development adds to the long list of Calculagraph engineering accomplishments that have solved telephone industry toll-timing problems for more than six decades. Plan now to add this new feature to your Calculagraphs.

**Also available for Calculagraph "round" models.*

CALCULAGRAPH Company

274A Ridgedale Avenue, East Hanover, New Jersey

may be reclaimed for further use, thus eliminating waste.

The result is a permanent, tough finish with a normal edge coating thickness 60-75 per cent of the flat-surface finish. The thickness of the resin can be

controlled by the flow of resin from the gun and by the temperature to which the part is heated. With experience, coatings ranging in thickness from approximately 5 mils to 30 mils or more are said to be possible.

In most cases, sufficient residual heat will remain in coated objects to cure the resin completely. However, if parts are small, or have a large surface to mass ratio, they will lose heat quickly and require brief post-curing. Recommended curing times and temperatures range from 30 seconds at 450 degrees F., to 5 minutes 300 degrees F.

"Scotchcast" XR-5026 is designed for use wherever chemically-resistant insulation coating is needed. This one-part powder requires no weighing or mixing, and presents no pot life or shelf-life problems when stored in a cool, dry location.

Adhesion strength of "Scotchcast" XR-5026 to steel is 3,000 pounds per square inch. The company points out, by comparison, the adhesion strength of zinc to steel in the usual galvanizing process is 1,500 pounds per square inch.

Also, when cured, the resin exhibits strong thermal shock and impact resistance, 3M reports; and "Scotchcast" XR-5026 is suitable for continuous operation at 155 degrees C., with short-time operation at 180 degrees C. Request NP1561.

•

HEAD-SET EAR CUSHION — Tele-Muff Co. now has available its Air Cushion, an ear-piece of vinyl plastic foam (indicated by arrow in cut) which, it says, relieves pressure on the head-set wearer's ear.

The company states it developed the Air Cushion in response to suggestions from operators who were using its Tele-Muff Jr., which relieves ear pressure on the receiver side of the head-set.

These operators suggested something soft, light-weight and airy that would take the pressure off the wires that cross the head, and also permit air to reach the head on the side opposite the receiver.

Offered in seven colors, Tele-Muff states its Air Cushion is sanitary and long-lasting. Each is of one-piece, moulded construction. Slots in the Air Cushion, for the over-the-head wires, are also moulded for added strength. Request NP1562.

•

CONTACT CLEANER — The Caig Laboratories, Inc. have announced the availability of their new contact cleaner, Cramolin-Paste, as an addition to the line of contact cleaners and preservatives.

This new cleaner is distinguished from others, in that it is in semi-solid form, and is recommended for use where high amperages and/or high voltages are involved.

In telephone exchanges, the company states, Cramolin-Paste will be found useful in reducing sparking of the brushes on commutators of motor-generator sets used for battery charging. In addition, it has proved useful on collector ring assemblies of the rotary type ringing equipment.

AMCHEM, the makers of Weedone, can solve your brush problem...*whatever it is*

LINE CLEARANCE

Turn brush-choked utility rights-of-way into brush-free areas quickly and economically with WEEDONE/WEEDAR brush control chemicals. Also now available—complete brush control programs through new "dormant cane broadcast spraying" techniques.

ROADSIDE CLEARANCE

New AMIZINE Weed Killers and AMIZOL combinations provide complete vegetation control along thousands of miles of roadsides, center strips, embankments, guard rails, etc.

RIGHT-OF-WAY CLEARANCE

Specialized Amchem techniques using WEEDONE/WEEDAR chemicals and AMIZINE/AMIZOL combinations provide high control, low cost chemical brush eradication programs for railroads.

AMCHEM PRODUCTS, INC.

Amchem, Weedone, Weedar and Amizol are registered trademarks of **AMCHEM PRODUCTS, INC.** (Formerly American Chemical Paint Co.)
AMBLER, PA. • Niles, Calif. • St. Joseph, Mo.

AMCHEM PRODUCTS, INC., Ambler, Pa.
Please send me copies of your "Brush Control" brochure and full information on the uses of Weedone Brush Killers.

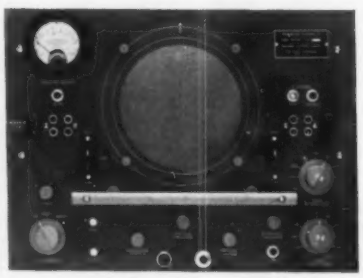
Name_____ Title_____
Company_____
Address_____
City_____ Zone_____ State_____

BUILD YOUR PROFIT POTENTIAL

Reduce Testing Time and Make Optimum Use of High-Cost, Experienced Personnel

You can meet the challenge of modern, ever increasing service demands; the far more stringent test requirements resulting from D.D.D.; by application of the new Hallamore designed and manufactured Swept Band Transmission Test Set. This unique instrument affords fast, completely accurate transmission measurement (including repeater or amplifier gain, determination of return losses, and location of loading faults). Readings are in visual form, easily photographed to provide a permanent record.

Range is from 200cps to 4000cps. Unit may be rack mounted or may be used for greater mobility on a Hallamore test wagon. Accessories include a Hybrid Test Set, Camera Attachment, and Artificial Lines. For detailed information, please write Hallamore, Telephone Department, 714 No. Brookhurst St., Anaheim, California. PRospect 4-1010, D.D.D. area 714.



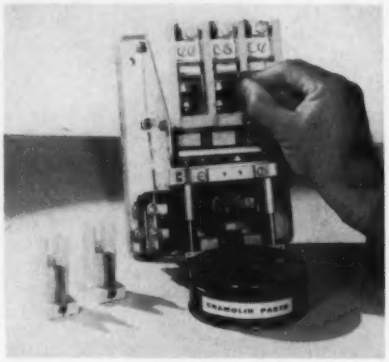
SIEGLER

Division of The Siegler Corporation

HALLAMORE

Repeaters/Test Equipment/Repair, Rebuild, Color Subscriber's Apparatus/Closed Circuit TV

Especially adhesive to contact surfaces, the company says, it will not be pushed away by the pressure of switching contact levers, but spreads out in an even amount. Because of this char-



acteristic, the paste stays on for three or four weeks, and is said to serve as an excellent current-carrying lubricant. Request NP1563.

GOOD SERVICE

Concluded from page 24

to good relations between two groups of people who must work together if mutual benefits are to be had.

In talking with telephone people here and there, I find the affairs of the PBX customer are becoming more and more prominent in the scheme of the future. Some companies have recognized this and have enlarged their visiting PBX personnel, at the same time expanding their scope of coverage. The importance of the PBX attendant in the years ahead cannot be overemphasized. It becomes vividly apparent, as DDD and mechanization take over the industry.

Good service cannot be stockpiled. Nor can it be controlled by push-button philosophy. It must be constantly under close surveillance. Telephone company management knows this. The PBX attendant, as the chief auditor of good service, knows it, too. The telephone company's reputation for being tops in the good service department is second to no other business in the world. Let's help keep it that way by working closely with our PBX friends.

IN THE NATION'S CAPITAL

Continued from page 18

to be chiefly concerned with rural electrification, it is well to bear in mind that about 97 per cent of the American farms already have electricity but only about 65 per cent (Census figure) have telephone service. So it would seem that the area of future REA activities would be very much given over to the telephone branch of that agency's responsibilities. Notice especially the third item in the foregoing list in which Secretary Freeman says that he expects "the rural telephone program to accomplish *area coverage telephony to a maximum degree, with emphasis given to the potential which rural telephone cooperatives have to offer.*" (Italics supplied.)

French Telephone Service Notes

The New York Telephone Co.—and perhaps other telephone companies in large American cities—is not the only one which has to stand for some kidding or worse for charging extra for unlisted service. In Paris, France, where the telephone service is operated under the auspices of a government monopoly, there is even a louder squawk about what seems to be a case of charging more for less service.

As in the New York situation, the French telephone administration imposes a small extra charge on subscribers who do not want to have their names in the telephone book. The reasons, of course, are the same in both situations. There is actually an extra expense and effort incurred in taking certain specified telephone subscriptions out of the routine of directory listings and placing them in a special category requiring a special class of treatment, billing, operating service, etc.

It is hard enough for the American subscriber, used to the mysteries of mass production and large-scale operation, to understand that the charge for unlisted service is a bona fide case of compensation for an extra charge incurred on behalf of the unlisted subscribers.

But to the thrifty French citizens, who regard any additional governmental levy on their cash reserves as a form of cruel and unusual punishment, the charge for unlisted service was greeted by cries of outrage. Unlisted service, however, is a desire of relatively few subscribers in Paris as in New York. Most Parisian subscribers would feel cheated without directory listings and everything else that went along with the telephone subscription.

It was the next step in negative payment ideas that threatened to shake

with a *Truco* 8000 lb. Center Mount Derrick

Never underestimate the power of a Truco turret derrick — especially the new compact Universal Center Mount Derrick. Here is a ruggedly built, all around utility tool that lifts, digs, puts a man in the air, sets a pole and installs the hardware. You mount it behind the cab of any standard line body in only 16" of space*. You get 360° rotation of the box-type steel telescoping booms from dual unitized controls. You lift up to 8000 pounds of payload with smooth hydraulic operation while twin hydraulic outriggers keep your vehicle Gibraltar steady.

You'll be able to dig those holes that just couldn't be dug before, too. Truco's new 4-speed hydraulic digger has three conventional speeds plus a brand new super low speed for biting through shale, caliche and hardpan — even anchor holes are possible with ease at *any* angle, in *any* direction. For aerial lift use, add a fiberglass safety basket with airplane-type single stick control.

Before you buy, insist on seeing this multi purpose utility tool in action. Investigate the savings *you* can make on *your* utility jobs — in dollars, manpower and time. See your Truco dealer or write for details.

**Also available for corner mount installations.*

TRUCK EQUIPMENT COMPANY

"The COMPLETE Line of Utility Equipment"

3963 Walnut Street / AC 2-7905 / Denver 5, Colorado

"Better Holes by Heck!" WITH THIS

.... Self-Powered
HOLE DIGGER

• The low-cost, fast way to dig holes. Fits on any A-frame. No expensive installation. Digs holes up to 8 ft. deep and 20 in. in diameter. One man operates digger with all controls mounted on machine. Made in 9-hp. and 18-hp. models. Auger is cleaned by spinning. Electric starter available. Digs anchor holes with ease. Operator shielded from moving parts. Film of machine in operation available. Write for descriptive bulletin.

HECKENDORN MFG. Co.,
CEDAR POINT, KANSAS
Tel.: BRoadway 4-3745

CONDEX* MULTIPLE CONCRETE CONDUIT

Special fittings—miters—short lengths—expanded web sections available, also adapters to claytile, transite and fiber duct.

9 DUCT FORMATION
ON JOB SITE

American Concrete Pipe Co., Sub. of Am. Pipe and Construction Co., 2025 S. Seventh St., Phoenix, Ariz. Tel: AL 2-7566
American Pipe and Construction Co., 4635 Firestone Blvd., Southgate, Calif. Tel: LOrain 4-2511
American Pipe and Construction Co., 101 Alquire Rd., Hayward, Calif. Tel: JEfferson 7-2072
American Pipe and Construction Co., 816 N.E. Columbia Blvd., Portland, Ore. Tel: BUtler 5-2531
Concrete Conduit Corp., 130-01 Northern Blvd., Corona, N. Y. Tel: ILLinois 7-1515
Chicago Pre-Cast Products Corp., 29W629 North Aurora Rd., Naperville, Ill. Tel: EL 5-2700—2701
Denver Concrete Products Co., 5620 Marshall, Arvada, Colo. Tel: HA 2-4202
Eastern Pre-Cast Corporation, 675 Main St., Tullytown, Pa. Tel: Windsor 9-3750
Elmore Concrete Products Co., Division of North Star Concrete Co., Elmore, Minn. Tel: Elmore 52
J. E. Evans Concrete Products Inc., Cleveland, Ohio. Home Office: Indianapolis, Ind. Tel: WAlnut 5-5301
J. E. Evans Concrete Products Inc., Shelbyville, Ind. Tel: WAlnut 5-5301
Neff Concrete Products Co., 711 Section St., Danville, Ill. Tel: Hickory 6-1016
PRE-CON Limited, Oranda Rd., Brampton, Ontario, Canada. Tel: HUdson 1-3492 (Toronto)
Pre-Con of Quebec, Ltd., Montreal, Quebec, Canada. Home Office: Brampton, Ont. Tel: HUdson 1-3942 (Toronto)
T.E.L. Pre-Cast Products Corp., 1 Industrial Ave., Edgewater, Florida. Tel: GArden 8-9881
Utah Concrete Pipe Co., 379—17th St., Ogden, Utah. Tel: EXport 9-1171
For information regarding CONDEX* Multiple-Duct Concrete Conduit, call or write your local producer, or the parent company.
*Registered Trademark

CONDEX
GAGNE ENTERPRISES, INC.
29W 629 NORTH AURORA ROAD
NAPERVILLE, ILLINOIS
EL 5-2700-2701

the French Telephone Ministry. It has not been put into effect, and it may not be put into effect. But the idea is novel. In a word, *the telephone administration proposes an additional charge for those who do not use their telephones often enough.* Subscribers are demanding to know what the basic monthly charge represents.

Of course there was inevitably the field day for Gallic satire. *Le Canard Enchaine,* a satirical weekly, with tongue in cheek, applauds the proposed tax for "abusive nonuse," and suggests that it might be extended to other fields of government services. Why not, says the French weekly, impose an extra radio tax on those who do not listen often enough to those broadcasts which are approved by the Information Ministry? And why not a whopping big levy on those inconsiderate dead people "who by dying deprive the state abusively of the (tax) revenue it has a right to expect from the living?"

A tax for "nonuse" is certainly a new idea as far as American telephone service is concerned. American telephone as well as gas and electric companies, of course, have managed to levy a somewhat similar charge, in disguise through the "minimum monthly bill," which "entitles" the customer to so many calls or so many kilowatt-hours or BTU's whether he uses them or not.

But charging a customer for a minimum volume of use of consumption of service is a little different from actually making a penalty charge for failure to use the service. It could be that some of the French subscribers, charged on a strictly traditional per-call basis, are not making sufficient use of their service to make the subscription pay its way—hence, the penalty.

The somewhat amusing parallel drawn by the French magazine on this situation reminds this writer of a story about a former owner of the New York Giants' professional football team. It was during the time when the team was not very good and the fans were staying away from the games in droves—content to look at the TV version. The football manager happened to be watching a midnight Christmas service on television when the clergyman came on the TV with an announcement that witnessing this religious service by television did not absolve the faithful from their solemn obligation to attend church services, *in person,* the next morning. The football manager struck his head in dismay. "Boy," he exclaimed, "if I only had a gimmick like that to pull on those blankety, blankety Giant fans."

Another amusing comparison between French and American telephone serv-

In the web there is STRENGTH

. . . and the messenger is "married" to the cable core!

Members of Superior's office family in Hickory, N. C., left to right:
PEGGY TRAVIS NELLIE CARPENTER JOEL SHERRILL

Now . . . meet the members of the

SUPERIOR I.M. FAMILY

I. M. Exchange Area Cable

Variety of core constructions with color-coded plastic insulated conductors. Longitudinally applied copper or aluminum shielding.

I. M. Distribution Wire

Features all-weather core, with color-coding accomplished by an exclusive, permanent monofilament polyethylene stripe inlaid* in black polyethylene conductor insulation.

I. M. Single Pair Wire

Recommended for use in place of "C" Rural and long drop wire extensions. All-weather black polyethylene conductor insulation with inlaid* color-coding stripe.

I. M. Drop Wire

Contains copper conductors for better conductivity. High strength (525 lbs.) integrated messenger can be used as supplementary ground without additional expense.

**Patent applied for*

For complete information, write

SUPERIOR CABLE

SUPERIOR CABLE CORPORATION • HICKORY, NORTH CAROLINA 5356

ice, which recently reached your correspondent via the French press, was the complaints which the French citizens have about red tape and uncivil treatment from civil servants who conduct the business of the Telephone Ministry. Subscribing for a new telephone service, changing the address of an old one, or changing a directory listing is a routine, almost a perfunctory, thing in the telephone business in the United States. But in France apparently the clerical help sometimes make a big production out of it. Such bureaucratic obstruction is sometimes practical as a fine art. Two principal techniques are employed. The first is to send the applicant to some other office. The second is to demand that he or she produce some other or different papers from those he has.

An example given was that of a remarried woman who wanted to change her telephone directory listing. She was asked to produce her birth certificate, her marriage certificate, her divorce papers, an identification card, a rent receipt for the premises, and to pay $10. As a result of widespread complaints, not only about telephone clerks but other civil servants as well, the French Ministry of Information has decided that all government servants having contact with the public should be polite. Instructions have gone out that citizens are not to be required to produce all sorts of unnecessary papers every time some small service is required.

The French civil servants in such situations are also being required to put a name plate on their desks or wear a badge to identify themselves in event of complaints about their conduct or misconduct. But the reader should be warned that the French government is not plunging recklessly into such reforms. It is only dipping its toe into the water, so to speak. Only two of the 20 city halls in Paris and two of the 100 police stations within the city limits have been ordered to go on the new courtesy basis. If the population is not absolutely dumbfounded by such a display of sweetness and light, the idea might even be extended to the rest of Paris or even the rest of France.

Dial conversion, of course, has all but banished the colorful Parisian switchboard operators of former times whose scorching ability to berate the telephone-using public (and each other) used to be one of the most delightful experiences of traveling abroad. But, if you don't delay too long, you can still get into a wonderful argument with French bureaucracy and red tape simply by asking for new telephone service or change of listing.

General Waterworks Acquires Stock of Utah Company

The General Waterworks Corp. has purchased the stock of the Bear River Telephone Co., Tremonton, Utah, it was reported on Feb. 17.

Bear River is now a fully-owned subsidiary of General Waterworks and has its operating headquarters at New London, Ia.

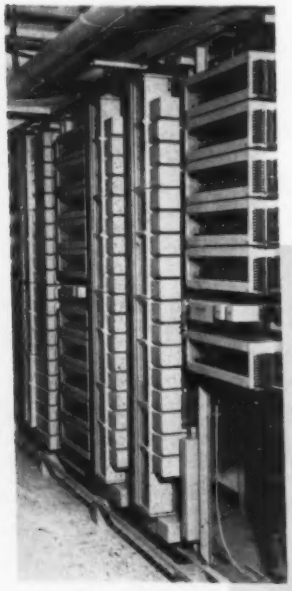
The Bear River company's operating staff is as follows: A. W. Sanders, executive vice president; Vincent Chiodo, general manager; R. R. Hanson, vice president and chief engineer; and Mark W. Holmes, purchasing agent.

All staff members listed above are at New London, with the exception of Mr. Chiodo, who is headquartered at Tremonton, Utah.

Announcement of the sale was made by Mr. Sanders.

New Dates For RMTA Meet

The Rocky Mountain Telephone Association will hold its convention on September 13, 14 and 15 at the Owyhee Hotel, Boise, Ida. instead of Sept. 20, 21 and 22, as previously scheduled.



USI TYPE 40C PABX
Eliminates the attendant

Incoming Central Office calls switched automatically to PABX stations — no switchboard, no attendant. Economy based on build-in efficiency, unlimited expansion.

Ease of operation assures satisfaction for you and your subscriber. Careful design reduces costly trouble calls. Most optional features standard on the Type 40C PABX.

Why not call us today? We're at Charlottesville 3-5153.

For a more detailed discussion, write for Bulletin P60F6.

USI CORP.®

UNITED STATES INSTRUMENT CORPORATION
CHARLOTTESVILLE, VIRGINIA

USITA Advertising Committee Votes to Produce Film

A film depicting the role of the Independent telephone industry in the nation's communications system is set for completion on October 1 in time for a preview and premier showing at the USITA convention (Oct. 8 through 11), the United States Independent Telephone Association has announced.

The association's Advertising Committee, after considerable study, voted at its Feb. 2-3 meeting, to proceed with the motion picture's production and distribution.

Total cost of the film will be $25,000, and it will be produced by Parthenon Pictures of Hollywood, Cal. The movie will be photographed in 16mm color and will be from 20 to 26½ minutes in length.

Advertising Committee Chairman Hugh Barnhart stated that it is currently planned to make prints available to all USITA member companies on a purchase/rental basis. The exact method of distribution will be worked out later.

A professional film distributor will make the movie available through free loan bookings of a specified number of prints to audiences such as service clubs, business organizations, women's clubs, church societies, fraternal organizations, open house guests, high schools, colleges and similar groups. The distributor will also make the film available to TV stations in selected areas.

Chairman Barnhart, commenting on the film, said:

"This is the first film ever produced by our industry and of necessity it must be of a general and broad nature. Its purpose shall be to tell the story and accentuate the importance of the Independent branch of the telephone industry in an interesting, informative, entertaining, and dramatic manner, with the express intention of creating in those who see the film, an awareness that everything possible is being done by their local Independent telephone company to provide the best and most modern telephone service available.

"The association intends the motion picture to be a tribute to the Independent telephone companies throughout the nation, and I am confident that when the picture is finished all companies will be proud to show it in their areas and that it will serve as a dramatic and useful public relations tool."

Charles Palmer is executive producer of Parthenon Pictures. Formerly a New England businessman, Mr. Palmer was vacationing in California when he authored a short story which he sold to *Cosmopolitan*. This sale led to a new career, in which he wrote magazine

CEECO

CEECO TYPE C125

CEECO

GALVANIZED STEEL CASE ASSEMBLIES

FOR AERIAL (POLE MOUNTING).

CONTAINING FOUR TO FOUR HUNDRED SIXTY UNITS.

- LEAD STUB ASSEMBLIES ARE PRESSURIZED
- PLASTIC STUB ASSEMBLIES ARE SEALED IN THERMOPLASTIC COMPOUND TO INSURE PROTECTION FROM MOISTURE.

These assemblies can be equipped with loading coils, capacitors, inductors and MF units.

Write us for assistance on your loading problems.

CEECO Loading Coils are sold by your telephone equipment supplier.

COMMUNICATION EQUIPMENT & ENGINEERING CO.

5646 West Race Avenue • Phone EStebrook 8-3109 • Chicago 44, Illinois

TAKE A BIG STEP TOWARD **SAFETY** *WITH* **DUO-SAFETY** *LADDERS*

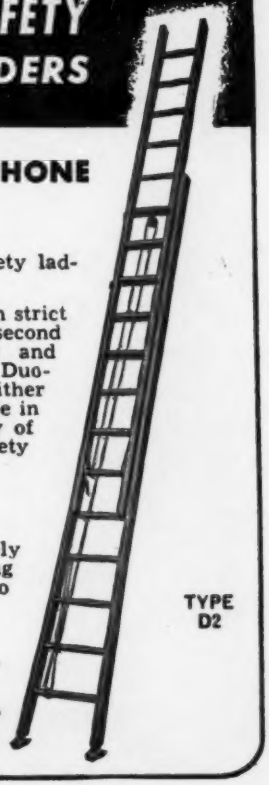
... CUSTOM DESIGNED FOR TELEPHONE MAINTENANCE WORK!

Here's one fine example of the many Duo-Safety ladders ideal for telephone maintenance work.

Type D — a truly great extension ladder built in strict accordance with safety regulations. Rungs are second growth hickory, reinforced with steel rods and equipped with special automatic locks and Duo-Safety's famous Safety Shoes. Made with either straight or parallel side rails, Type D is available in one, two or three sections — in a large variety of sizes. Write for free catalog on all Duo-Safety ladders.

IMMEDIATE DELIVERIES!

Duo-Safety ladders will be shipped immediately upon receipt of order! A planned stock-piling program assures really fast action — there's no delay the Duo-Safety way!



TYPE D2

For Information, Contact Your Supply House, or

DUO-SAFETY LADDER CORP.

809 Ninth Street • Oshkosh, Wisconsin

MAKE A "TEST CUT" WITH BETTER HKP® PORTER PRUNERS

AND DISCOVER FASTER, EASIER CLEANER *Pruning*

A FINER TOOL FOR EVERY PRUNING OR BRUSH-CUTTING JOB!

The proof of the pruner is *performance*! Try any Porter Pruner on any job. The first, fast, easy cut will convince you that the seconds saved per cut can mean $$$ saved from now on. If you are not using Porter Pruners, switch to these work-saving tools today! There's a Porter Pruner for all pruning jobs.

OVERHEAD AND ON-THE-GROUND CLEARANCE JOBS!

"FORESTER" HEAVY-DUTY BRUSH CUTTER — with exclusive patented "Slide Shift" — lets you switch from "easy" to "hard" to "toughest" cutting simply by shifting the handle. Takes the place of 3 ordinary pruners. 2 sharp, fine-steel blades give quick-healing, clean cuts, make work easy for operator. 2 models — 0290F — Capacity 1½" green wood; 0390F — Capacity 2" green wood.

PORTER POLE PRUNERS for utility line clearance. 4 models — for all work. Lightweight model — short and long arm types, with and without pulleys. Cut up to 1" green wood. Available with Solid or Jointed Poles.

ASK YOUR SUPPLIER — or write us for the complete PORTER PRUNER catalog.

HKP®

H. K. PORTER, INC.

Somerville 43, Mass.

features and a dozen books as well as articles for *Readers Digest*.

Turning to motion pictures, he spent five years making theatrical films for Walt Disney. He is co-author with Dore Schary of the book "Case History of a Movie."

Seven years ago, Mr. Palmer entered the business of making business-sponsored documentaries on a full-time basis, organizing Parthenon Pictures-Hollywood.

His firm has produced documentaries for AT&T, Western Electric, International Harvester, Chrysler Corp., Hilton Hotels, Kaiser Aluminum, the Borden Co. and the American Petroleum Institute.

AT&T Reports to Shareholders New Stock Offering Price

American Telephone & Telegraph Co. directors on Feb. 15 set $86 as the price at which shareowners will be able to purchase additional stock under the offering announced last December.

AT&T shareowners will be able to buy one share of stock for $86 for every 20 shares held on Feb. 23.

Rights to purchase the additional shares will be mailed to more than 1,900,000 shareowners about Mar. 10. The subscription period will end Apr. 14.

Teen Wins Honors in Science Contest for Telephone Project

A young Indiana student, who built a prize-winning telephone system from spare parts, is now receiving national recognition as a winner in the Science Talent Search.

David Peterson of Delphi is one of 399 high school students across the country that have won places in the honors group of the 20th contest sponsored by the Science Clubs of America, an activity of the Science Service in Washington.

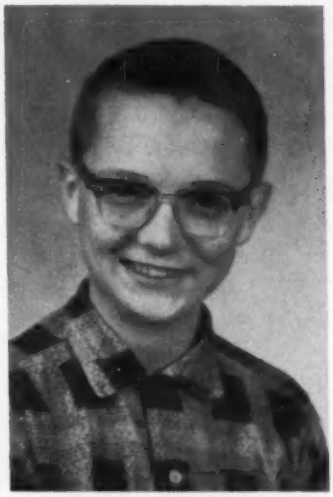
Examinations for 25,355 graduating seniors were requested for the current Science Talent Search. Of this number, a total of 3,991 met all qualifications for the judging. All of the honors group will be recommended for admission and scholarship awards to colleges and universities.

David's project was "A Step-By-Step Dial Telephone System for Use on the Farm." The 25-line system contains several unique features, including a device for controlling an electrical appliance from any telephone.

Users may also listen to a radio program from any instrument, or determine the level of liquid in a tank by the telephone.

Equipment for the project was supplied by Automatic Electric Co., Northlake, Ill., General Telephone Co. of Ind. and the Carroll County Telephone Co., Delphi.

The 17-year-old youth won first-place honors for his telephone system at the Indiana State Fair, after winning a Carroll County 4-H Fair division championship.



DAVID PETERSON

David entered the Talent Search as the result of a publicity story which was sent to the Science Service. The organization's youth director saw the story on this project and suggested that he enter the contest.

David follows the pattern of his co-winners for scholastic excellence and extra-curricular activities. He is a member of the National Honor Society, a semi-finalist in the National Merit Scholarship Test, president of the Delphi Science Math Club and is active in other high school and 4-H activities.

The project papers, written by David and other teen-age scientists, also are dramatic evidence of the scope and depth of their interest and ability.

Scanning the list of papers, reveals titles like this: "Analysis of Radio-isotopes by Alpha-Particle Range Detection," "Static Testing of a Liquid Fuel and Solid Fuel Rocket Propulsion System," "Geometrical Foundations of the Theory of Relativity," "Lunar Phototopography," plus scores of others.

One student seemed to sum up the outlook for David and his generation with his paper entitled: "Roads to the Future."

[*Editor's Note: Through the years,* TELEPHONY *has been interested in helping these young "scientists" in getting information and equipment for their projects of building telephone systems.*

Several of these young men, located

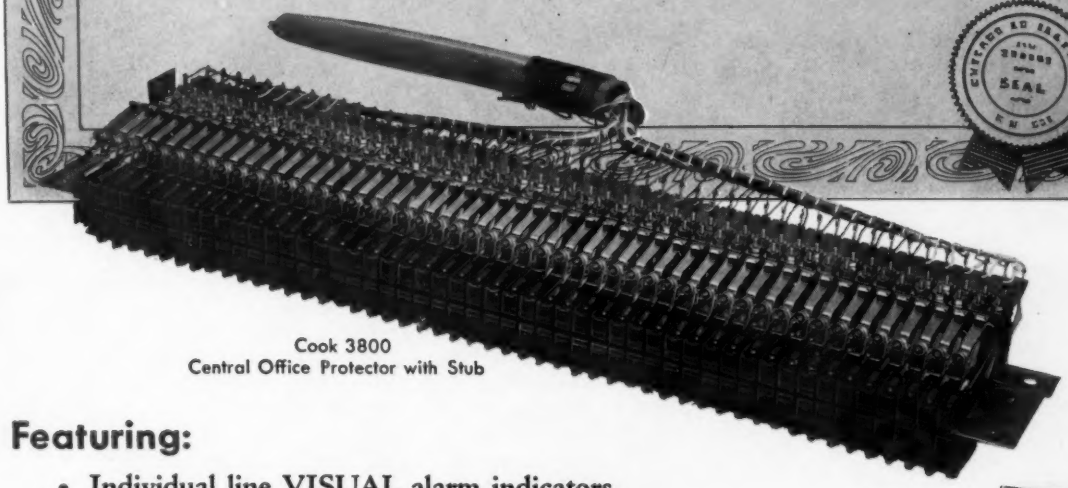
Value Proved

3800 PROTECTION

by

COOK

Unsurpassed in Versatility

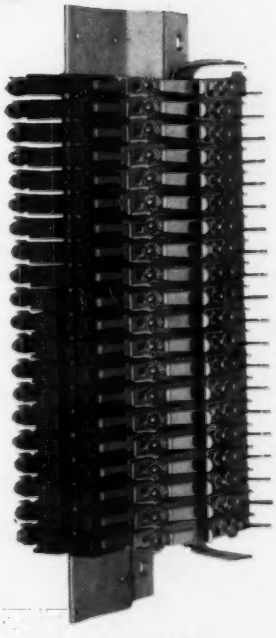


Cook 3800
Central Office Protector with Stub

Featuring:

- Individual line VISUAL alarm indicators.
- Sectionalized ELECTRICAL alarm signaling.
- Heat coil operation that OPENS switchboard circuit and GROUNDS the line circuit.
- Stock supply in 10, 20, 21, 50, 51, 100 and 101 pair sections.
- RESETTABLE heat coils that do not have to be replaced after operation.
- 50 and 100 pair sections available with factory connected tip cable stub that is color coded, P.V.C. insulated and P.V.C. sheathed.

Cook 3800 Central Office Protectors—Standard of the Independent Telephone Industry.



Cook 3800
Central Office
Protector

COOK ELECTRIC Company

2700 SOUTHPORT AVENUE CHICAGO 14, ILLINOIS

Model TBM Mast provides complete service entrance facilities for outdoor telephone booths with the definite plus advantages of lower cost and easier installation. Raises power lines for specified ground clearance.

FITS MOST BOOTHS
Meets Code Requirements

LOOKS BETTER The TBM Mast is engineered for the job. Adds to the appearance of any booth.

LASTS LONGER Heavy gauge steel tubing used throughout for life-time service. Only heavy duty fittings used.

COSTS LESS Actual installations show savings up to two-thirds over conventional installations.

REMOVABLE. Can be moved from one location to another. Simply disconnect lines and pull mast out of ground sleeve.

Utility Service Co., Inc.
1620 THIRTEENTH ST. RACINE, WISCONSIN

in various parts of the country, including David Peterson, are subscribers to TELEPHONY, *and through the efforts of this magazine, and its technical editorial director, Ray Blain, they have been brought together through correspondence.*

As one of them, Dave Roberts, of New Haven, Conn., 17 years old, owner of West River Amateur Telephone & Telegraph Co., said to Ray Blain: "I want to thank you for mentioning the names and addresses of we telephonists. None of us have ever met, but we correspond with each other. Thanks for giving us a plug."

TELEPHONY's *interest in these young men stems not only from a desire to help them educationally, but to encourage them to maintain their interest in the telephone industry.*]

Employes Participate in TR&S Stock Ownership

Mr. and Mrs. Daniel H. McNulty, principal owners of The Telephone Repair & Supply Co., of Chicago, have announced that they have transferred partial stock ownership of the company to Vincent D. Halloran, vice president and general manager, and five veteran company employes.

In addition to Mr. Halloran, who has been with the company since March 1, 1960, those receiving stock are William Masloske, superintendent; Frank Schutz, foreman; Elizabeth Iverson, forelady; Marvin Shrake, assistant foreman, and Alice Dinghofer, office manager.

In announcing the change in stock ownership, Mr. McNulty said: "Mrs. McNulty and I are not retiring from the business, but we desire, from time to time, to share ownership of the business with those people who have been with us many years and who have helped build the company to its present status."

D. H. McNULTY

Mr. McNulty will continue as president of the company and Mrs. McNulty as secretary and accountant.

Mr. McNulty started the business in 1926. Then known as the Telephone Repair Shop, the name was later changed to Telephone Repair & Supply Co. It is primarily a service company offering repair and rebuilding facilities

Five veteran Telephone Repair & Supply Co. employes to whom, in addition to Vincent D. Halloran, company vice president and general manager, Daniel H. McNulty, president, has transferred partial stock ownership of the company. Left to right (standing) are: William Masloske, superintendent; Elizabeth Iverson, forelady; Frank Schutz, foreman; Marvin Shrake, assistant foreman, and (seated) Alice Dinghofer, office manager.

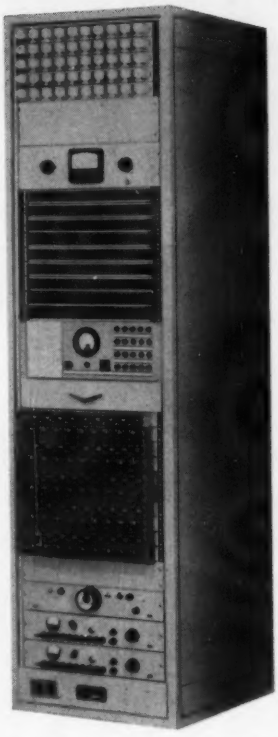
GET ON THE ALTEC LINE—for improved communication equipment

Copyright 1961 Altec Lansing Corporation

For performance, reliability, and servicing ease, the Altec line of amplifiers and equipment have won a resounding vote of confidence from the industry. Precision-engineered to meet your most exacting specifications, Altec products offer the improved design that makes maximum use of minimum space — and the "plus" that makes the difference — Altec quality.

ALTEC "Quick-Fix Termination Bay

Typical cable termination bay has capacity for 50 transmitting and 50 receiving channels. Equipped with ALTEC plug-in line repeat coils, transistorized plug-in repeater amplifiers, plug-in equalizers.



The 455A Amplifier is a transistorized repeater type amplifier wrapping up a compact package of gain for telephone circuit use. Incorporates the gain, power handling capacity, frequency response, plug-in features in the physical size of vacuum tube type repeater. Ten repeaters go in the same standard rack mount used for vacuum tube types. Operates on 48 volt DC @ 22 ma: (453A model operates on 24 volt DC). Since it is transistorized no 130 volt supply is needed. For details, write for Altec Lansing Bulletin #AL-1600.

The 533 Power Supply is designed to fit within a 105-B Apparatus Box. The power supply bracket includes the required socket and space to mount a single ALTEC transistorized repeater type 449, 450 or 453-A and, at reduced power, the 447-A. Operating from 117 volts AC the unit delivers 20 v at 25 ma. Write for Bulletin #AL-1600.

The 12910 panel is provided to mount 10 amplifiers or Altec line Equalizers. The panel is 1¾" in height.

For complete information about Altec telephone and paging equipment, write to the address below or call 714- PRospect 4-2900 in Anaheim.

ALTEC LANSING CORPORATION

ALTEC LANSING CORPORATION, DEPT. T-A2
1515 S. Manchester Ave., Anaheim, Calif.
161 6th Ave., New York 13, N. Y.
A subsidiary of Ling-Temco Electronics, Inc.

Put these books to work for you!

ELEMENTS of SUPERVISION

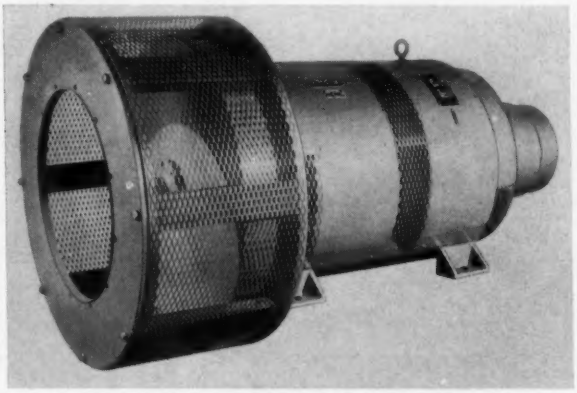
By W. R. SPRIEGEL, EDWARD SCHULZ, and W. B. SPRIEGEL. This second edition of a famous work in industrial management covers all the important recent developments in the field. Outdated topics have been condensed or eliminated, and the best practice of modern supervision has been incorporated. Seven new chapters have been added. One is a unique treatment of the question of the supervisor's part in promoting mental health. Some of the other chapters cover the supervisor's role in motion and time study, interviewing, and materials control. Other additions to the second edition include an appendix on statistical quality control and many new illustrations. *1957. 349 pages. $6.00.*

An INTRODUCTION to SEMICONDUCTORS

By W. CRAWFORD DUNLAP, Jr. Offers a survey of *all* the important aspects of semiconductors—from research to devices. Covers fundamental concepts, properties of materials, methods of measurement, and applications from a unified point of view. The treatment is almost entirely physical, the emphasis being on mechanisms and devices. It gives full coverage of germanium and silicon and discusses the properties of many other semiconducting elements and compounds. *1957. 417 pages. $11.75.*

For Sale By:

TELEPHONY Publishing Corp.
608 S. Dearborn St. Chicago 5, Ill.



Large Fly Wheel provides momentum for this "No-Break Power" Motor-Generator.

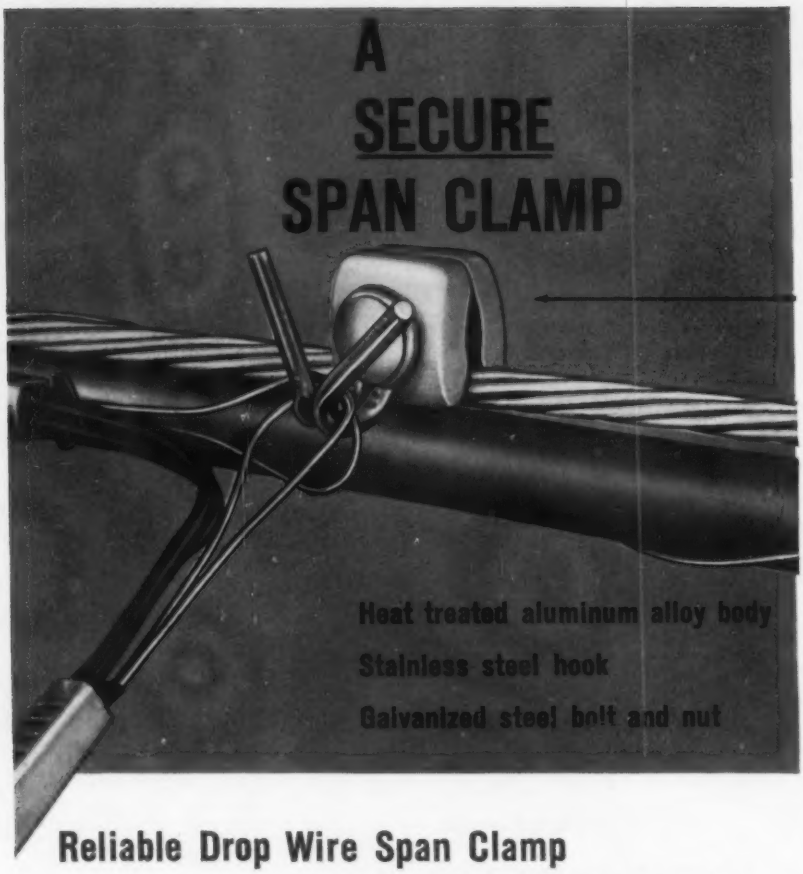
A "No-Break" power installation in a new micro-wave center is one of a wide variety of applications to which Kato motor-generators and generators are applied by Kato customers.

This Kato Motor-Generator has a unique fly wheel arrangement. In case of failure of normal electric power, the momentum of the large fly wheel is designed to keep voltage fluctuation at a minimum until a standby power plant is cut into the line. Features a brushless type generator, 5 KW, 120 volts, one phase, 50 cps, driven by a 10 H.P. 3 phase motor.

Other Kato generators range from 350 watts to 620 KVA. Special frequencies such as 400 and 1200 cycles are available in many sizes. Rotary converters, frequency changers, 60 Cycle, two bearing and single bearing for engine drive, in speeds ranging from 720 to 3600 RPM.

For further details write . . .

KATO ENGINEERING CO., 125 Maxfield, MANKATO, MINN.



Reliable Drop Wire Span Clamp for 1/4" to 7/16" strand

Accommodates 1 to 3 mid-span drops under full tension (plus wind & ice loading). The stainless steel "Y" shaped hook will take several drop wire clamps. Take-offs can be made at any angle. The square shank bolt, with nut, tightens securely with a wrench.

Send for your sample now.

Reliable ELECTRIC COMPANY
Franklin Park, Illinois
A Symbol of Integrity Since 1909

DATE_____

Please send me a sample Span Clamp

NAME_____

COMPANY_____ POSITION_____

STREET_____

CITY_____ ZONE____ STATE_____

to Independent telephone companies. It also manufactures some items the company has developed.

Mr. McNulty started his career in the telephone field in January 1902 as a student workman for the Western Electric Co. in Chicago. He worked as a groundman and helper in building telephone lines in North Dakota and Montana.

Later he worked as a switchboardman for the Sunset Telephone Co. (now a part of Pacific Telephone & Telegraph Co.) in Washington and Oregon, and also as foreman of underground construction and submarine cable laying in the Puget Sound area.

In World War I, he was master signal electrician of the 411th Telegraph Battalion. He also served as wire chief for the First Army on the Argonne drive, and as a member of President Wilson's Honor Guard in Paris.

After World War I, he was foreman of the telephone department of the Premier Electric Co., Chicago.

V. D. HALLORAN

Mr. Halloran was formerly with the Harris Trust & Savings Bank of Chicago in the trust department. He also served three years in the Army and four years in Naval Aviation, performing duties in radar and communication.

Mr. McNulty announced that he and Mr. Halloran will share attendance at the national and state telephone conventions.

Mich. Bell Names Eckley Vice President, Director

Frederick R. Eckley has been named vice president and general manager of the Michigan Bell Telephone Co. He has also been elected to the company's board of directors.

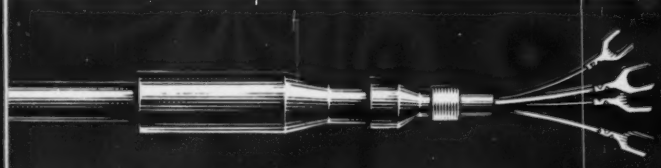
Mr. Eckley, who has 24 years of service with the Bell System, was formerly

AE

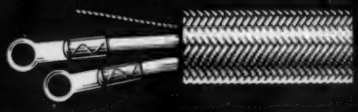
All your replacement cord problems are solved quickly and efficiently at AE. That's because we stock a complete line of standard Comco cords and can supply "specials" quickly. All Comco cords are guaranteed for top-quality performance.

Comco's new plastic jacketing adds longer life and noise-free transmission to cords. It's more durable and crack resistant than Neoprene. Comes in black or your choice of 10 colors.

Your AE representative will give you full details on the entire Comco line. Next time you need cords, get the finest with fast, friendly service. Get Comco cords from Automatic Electric.



stocks a complete



line

of Comco cords

- *Switchboard cords*
- *Handset cords for any make of phone*
- *Standard or special lengths*
- *Standard or special finishes*
- *Straight cords and coiled cords*

AUTOMATIC ELECTRIC

Subsidiary of

GENERAL TELEPHONE & ELECTRONICS

GENERAL SYSTEM

warehouses:

Northlake Illinois Fillmore 5-7111	2915 Moore St. Richmond 21, Va. ELgin 8-9280	2360 N. W. Quimby St. Portland 10, Ore. CApital 3-7244	158 Corliss Avenue Johnson City, N. Y. RA 9-4996	2021 Main St. Kansas City 8, Mo. HArrison 1-7575

director of personnel and public relations for the long lines department of the American Telephone & Telegraph Co.

F. R. ECKLEY

A native of Delaware, O., Mr. Eckley joined the Bell System in 1936, after graduating from Ohio State University with a bachelor of science degree. His first assignment was in the commercial department of the New Jersey Bell Telephone Co., and he subsequently served in a wide variety of management positions with other Bell System companies.

Cannot Cure All

"The public has been half-persuaded by a succession of administrations and Congresses to believe the dangerous myth that nothing ever happened to the United States that could not be cured with money."—EDITORIAL STATEMENT, *Los Angeles Times.*

KILLOREN
of WISCONSIN
established in 1926

Fully Equipped to Furnish:

Complete construction crews
Cable splicers
Buried cable crews
Station installers
Right-of-way clearing and maintenance

Main office:
136 N. STATE STREET
APPLETON, WISCONSIN
Phone REgent 3-5549

EVERY MONTH
More and More Telephone Companies use DIRECTORIES produced by
Your Inquiry Respectfully Solicited
LELAND MAST DIRECTORY COMPANY
1619 GREENWOOD WILMETTE, ILL.

PROFESSIONAL ENGINEERING AND CONSTRUCTION SERVICES
Plant Construction Crews • Installer Repairmen
Cable Splicers
CENTRAL OFFICE INSTALLATION
Complete central office routines, tests & adjustments, carrier installations, tests & alignments, key system installations.
HENKELS & McCOY
PHILADELPHIA
1800 Johnson St. Elkhart, Ind. Tel. Congress 4-1121
Atlanta, Ga. TR 5-2769 St. Johns, Mich.
Ashland, Ohio 3-7543 CAnal 4-4175
Bloomington, Ill. 5-7717 St. James, Minn. 492
Durham, N. C. 7-1316 Wausau, Wis. 2-2356
Lebanon, Ky. 660 Victorville, Calif. 5-9012
PERFORMANCE Has Built Our Business

CABANISS-POGUE COMPANY
Consulting Engineers
Appraisals—Cost and Rate Studies
Financial Assistance
GRANT BLDG., ATLANTA, GEORGIA

CALL — WRITE — WIRE
"AMERICA'S FOREMOST CABLEMEN"
Aerial and Underground Engineering and Construction Service For Telephone Companies
LARGE OR SMALL
U. S. CABLE CONSTRUCTORS, INC.
2002 E. Wisconsin Ave. P.O. Box 378
REgent 4-9881
APPLETON, WISCONSIN

CARL C. CRANE, INC.
Consulting Engineers
121 S. Pinckney St. Madison 1, Wis.
Telephone ALpine 6-0247

EQUIPMENT INSTALLATION & ENGINEERING
Your temporary installation and engineering bottle necks do not justify expensive new hiring.
Our equipment installers, engineers, radio and microwave specialists can keep you on schedule.
T.E.I. CORP. TW 95895 2118 E. 30th St. Erie, Pa.

TUDOR AND YAGER, INC.
Telephone Construction
TIPTON, INDIANA
Phone OSborne 5-2267

McGRATH ENGINEERING, INC.
Consulting Engineers
209 West 6th Street
TOPEKA, KANSAS
Telephone CE 2-2358

CABLE CONSTRUCTION CO.
1512 Center St. Tacoma, Washington
ENGINEERING - CONSTRUCTION
SPLICING - CABLE PLOWING
CENTRAL OFFICE INSTALLATION
World-Wide

CABLE SPLICING
LINE CONSTRUCTION
CABLE PRESSURIZATION
SYSTEMS ENGINEERED AND INSTALLED
UTILITIES CONTRACTING CO.
211 Custer St., Lansing, Michigan
Phone—IVanhoe 25248

SLOAN, COOK & LOWE
CONSULTING ENGINEERS
Appraisals—Original Cost Studies
Plant, Traffic and Commercial Engineering
120 S. La Salle St.
Chicago 3, Ill. Tel.: FRanklin 2-5924

Electric Power and Communications Construction
E. & C. CONTRACTING CO.
Box 191
Paoli, Indiana
Phone 7821

CLASSIFIED SECTION

Rates 15 cents per word payable in advance. Minimum charge $3.00 for 20 words or less.
Classified advertisements must reach us 8 days before publication date.

HELP WANTED

AMBITIOUS MEN qualified as Station Installers, Equipment Installers, Cable Splicers, Linemen. Work in Midwest. Harris-McBurney Company, Inc., P.O. Box 267, Jackson, Mich.

CABLE SPLICERS, Station Installers, Equipment Installers, Linemen. Experienced men needed. Steady work, good pay. Henkels & McCoy, 1800 Johnson St., Elkhart, Indiana, or 6100 N. 20th St., Philadelphia, Pa.

ENGINEERS — TELECOMMUNICATIONS SYSTEMS: Transmission; Propagation; Field Surveys, Applications Research. VHF, UHF, MICROWAVE, SCATTER. Write: Employment Manager, Microwave Services, Inc., General Offices, 266 W. Main St., Denville, N. J.

OUTSIDE PLANT ENGINEERS—Must be experienced in all phases of plant design, open wire and cable. Must have thorough background in loading and transposing. Please send detailed résumé or telephone R. G. Whitmore, National Scientific Laboratories, Inc., 2010 Massachusetts Ave., N. W., Washington 6, D. C. Telephone HUdson 3-4030.

TELEPHONE COMPANY PLANT MANAGER AND PLANT SUPERINTENDENTS familiar with all phases of Plant Department operation are needed immediately by a large growing independent Florida telephone company. College degree desirable plus 7-10 years supervisory experience — Age 30-44. Salary commensurate with qualifications and experience—free hospitalization, life insurance and pension. Send résumé and photo to Box No. 4502, c/o TELEPHONY. Replies strictly confidential.

TELEPHONE AREA OR DIVISION ENGINEERS needed immediately by a large, expanding independent Florida telephone company. Telephone engineering experience should include cost studies, budgeting, outside plant, special services, PBX-PABX and minor C.O.E. College engineering degree desirable plus 6-8 years experience including supervision. Age 30-43. Salary commensurate with experience and qualifications. Send résumé and photo to Box No. 4503, c/o TELEPHONY. All replies confidential.

INDUSTRIOUS, AMBITIOUS MEN qualified as Station Installers, Cable Splicers. Must also be able to do line work. Work is with a contractor and located in the Midwest. State experience and hourly wage desired. Write Box No. 4486, c/o TELEPHONY.

MANAGER for rural cooperative telephone system serving 1500 subscribers at Auxvasse, Missouri. Must have administrative ability and technical telephone experience. Please submit application, experience, references and salary expected prior to March 10, 1961. Travis R. Million, Pres., Kingdom Telephone Co., Auxvasse, Mo.

POSITION WANTED

QUALIFIED FOR SWITCHMAN, switchboardman, test boardman or installer repairman. 12 years experience with large Independent company. Write Box No. 4504, c/o TELEPHONY.

YOUNG MAN—married—38 years. 16 years experience wire communications. Supervisory field central office installation/maintenance of Stromberg, Kellogg, Federal, North and Automatic Electric automatic equipment and associated carrier systems. Engineering experience for manufacturing and operating companies. Write Box No. 4505, c/o TELEPHONY.

GENERAL MANAGER now employed desires to relocate with larger company. Experienced in all phases of the Business, including FCC accounting, REA procedures and Dial conversions. Will furnish best of references and experience résumé upon request. Write Box No. 4501, c/o TELEPHONY.

ASS'T. SALES MGR.

NORELCO's high quality precision telephone equipment.

An Experienced Assistant Sales Manager will administer this program.

Require person familiar with market, sales promotion, distribution, also a technical background in telephone systems desirable. Sales program to independent telephone companies, railroads, and other utilities includes such equipment as voice repeaters, PABX, CDO's, etc.

Highly desirable opportunity for responsible, experienced person able to plan and grow in this unique position with an expanding company.

NEW YORK CITY
MANY COMPANY BENEFITS

Send résumé including salary requirement to:
MR. MARTIN G. WOLFERT
100 East 42nd Street
New York 17, N. Y.

All replies held in strictest confidence

NORTH AMERICAN PHILIPS COMPANY, INC.

NORELCO

TELEPHONE
DOMESTIC & OVERSEAS
High Salaries
Telephone-Installation
Outside Plant
Telephone-Inspection
Outside Plant Construction
Overhead & Underground Cable Splicing
Req: 8 years wire engineering and/or installation/splicing
Write: Employment Manager
CAPEHART CORP.
87-46 123rd St. Richmond Hill 18, N. Y.

SAVE FROM "BUCKEYE" STOCK

NORTH ELECTRIC RELAYS (Reconditioned)
#333-H Relays 33 point with 250 ohm coil
#505-H Relays
#34-B-20-H & H-1-ccc-20 Line Relays (LR)
#2-B-07-1-7-JJ-18 Cut-off Relays (CO)
#6-B-29-1-5-DDD-20 Lock-out Relays (LO)

OPERATORS HEADSETS (New)
W.E. #52-A Headsets with plugs
W.E. #52-H Headsets with plugs
(same as 52-A except reinforced transmitter arm)

BATTERY ELIMINATORS (Reconditioned)
48 volt 3 ampere battery eliminators or chargers
24 volt 1 ampere battery eliminators

PLUGS SWITCHBOARD (New)
Kellogg # 106 with short shell
W.E. #47-A

BUCKEYE TELEPHONE & SUPPLY CO.
1250 Kinnear Road Columbus 21, Ohio
HU 8-0665

Immediate Openings

OVERSEAS
AND IN THE
UNITED STATES
FOR
—— ENGINEERS ——

TELEPHONE ENGINEERS, SYSTEM DESIGN
TELEPHONE INSIDE PLANT ENGINEERS
TELEPHONE OUTSIDE PLANT ENGINEERS
TELEPHONE TRAFFIC ENGINEERS
RADIO RELAY SYSTEMS ENGINEERS
RADIO RELAY ENGINEERS
RADIO ENGINEERS
TELETYPE ENGINEERS
MULTIPLEX ENGINEERS
MICROWAVE TECHNICIANS
POWER ENGINEERS
SPECIFICATION ENGINEERS
TRAINING SUPERVISORS

U.S. CITIZENSHIP REQUIRED
(Families may accompany)

SUBMIT DETAILED RÉSUMÉ OF SCHOOLING AND EXPERIENCE AND DEFINITE BASIC SALARY REQUIREMENTS TO:

Box No. 4495
c/o TELEPHONY

TELEPHONE OUTSIDE PLANT ENGINEERS

Immediate Openings For: Thoroughly Experienced Engineers in Various Project Support Activities in Home Office Staff Group

TELEPHONE INSIDE PLANT ENGINEERS

Carrier experience combined with thorough knowledge of transmission criteria. Must be willing to relocate after initial home office assignment.

CARRIER INSTALLERS SUPERVISORY

Heavy experience requirement for supervision of projects at various missile bases.

• **LIBERAL EMPLOYEE BENEFITS** including excellent retirement program. These positions offer unusual opportunities in a new division of a long established company. Send complete resume of past experience

TO: MR. H. J. RECKAS
OR MR. E. T. MACULAK

Advanced Communications Engineering

A DIVISION OF COOK ELECTRIC COMPANY CHICAGO, ILLINOIS

6038 Twenty Eighth Ave. S.E. Washington 23, D. C.

WANTED TO BUY

INTERESTED IN PURCHASING TELEPHONE COMPANY. Write Box No. 4458, c/o TELEPHONY.

WANTED ALL MAKES OLD TELEPHONES—our truck will pick up and pay you Cash on the spot. Telephone Co., Turtle Lake, Wis.

ROTATING RINGING GENERATORS for synchromonic frequencies, or will consider decimonic, with or without driving motor. Pecos Telephone Co., Pecos, N. M.

TELEPHONE COMPANIES—Independent telephone operating company seeking to extend its operations. Adequate financial ability. For an equitable arrangement inquire Box No. 4499, c/o TELEPHONY.

TELEPHONES—all types—any condition, candlesticks, wall sets, etc. Write advising quantities available. Our trucks will pick up. Reply to Box No. 3952, c/o TELEPHONY.

ARE YOU INTERESTED IN SELLING YOUR TELEPHONE COMPANY? We are ready to buy and able to offer highest price. Full cash or terms. Reply to Box No. 4487, c/o TELEPHONY.

WANTED TO BUY
TELEPHONES — Any condition. Desk stands, wall sets, etc. Advise quantity available.
Write Box No. 4438, c/o TELEPHONY

FOR SALE

LEICH 901-wall or desk magneto telephones. Cleaned, tested and guaranteed, $16.50 each. As removed from service, no broken or missing parts, $15.00 each. Turtle Lake Tel. Co., Turtle Lake, Wis.

REBUILT—A.E. #80 DESK SETS, dial. Stromberg #1543—Dial, St. line ringers — $16.00 each. Used General Machine model B lashers w/case — $75.00 each. FOB Chicago, Ill. Independent Telephone Repair Co., 2137 W. 21st St., Chicago 8, Ill.

FOR SALE

1600 LINE P. A. X.
Telephone System

Complete Automatic Electric Co. system consisting of 800 line switches and 800 line finders.

AVAILABLE JUNE 1961

Building Department
John Hancock Mutual Life Insurance Company
200 Berkeley St., Boston 17, Mass.
(DDD 617) HAncock 1-6000

FOR SALE

MODEL JC MICROFILM, priced reasonably. 500 steel pins ½" - 9½" over all with cobs. Stromberg-Carlson fire alarm circuit. Designed for 8 firemen to check back to reporting phone. For information on any of the above write—Haxtun Telephone Co., Haxtun, Colo.

QUANTITY GOOD GALVANIZED STEEL NO. 12 WIRE in half mile coils, five cents per pound. Quantity of creosoted 10-pin cross arms with glass and braces. Make offer. Several hundred desk dial telephones and parts at your price. Mebane Home Telephone Co., Mebane, N. C.

MONROE BILLING MACHINE, will be serviced before selling and is in excellent condition. Ideal billing machine for company up to 2000 stations, complete with stand and ledger sheet files. Will be taken out of service First of April. Will sell reasonably. Farmers Mutual Telephone Co., Harlan, Iowa.

NORTH ELECTRIC TELEPHONES No. H270 in good condition just removed from service with Western Electric dials—20 and 30 cycle ringers. Also, we have North CX composite signalling sets and all types North relays. Home Telephone Company of Simpsonville, Inc., Simpsonville, S. C. Telephone 963-4400.

FOR SALE—the following AE equipment: 4- Plunger type 100 line local switchboards; 37- Local selector switches #18744-A; 6- Toll and local connectors #18860-A; 13- Local connectors 18718-A; 3- Toll connectors (3 digit) 28024-A, 9- Toll connectors (3 digit) 28023-A. Telephone Services, Inc., 122 S. Elizabeth St., Lima, Ohio.

RECORDAK MICROFILMER, Model RM, 120 volt, 5 amp 60 cycle 500 watt complete with stand and Remington Rand Viewer, Model 7, 2 amp 15 volt DC. Purchased new in 1956 for $1935.00. Sale price $1095.00 FOB destination. Inquire General Telephone Co. of Pennsylvania, 20 East 10th St., Erie, Pa. Attn: General Supplies Supervisor.

1000 LINES OF AE COMPANY TERMINAL per line equipment consisting of eight 100-line rotary and two 100-line plunger primary line-switch boards and associated connector and selector equipment. Available July 1, 1961. General Telephone Co. of California, P.O. Box 889, Santa Monica, Calif. Attn: Equipment Supply Administrator. EXbrook 3-9311—Ext. 663.

SERVICES AVAILABLE

CDO ROUTINE SERVICE for small Independents located in Central and Southern Illinois, Western Kentucky and Tennessee. Call or write Lee Thrasher, Golconda, Ill. Phone OVerbrook 3-3846.

INSPECTION SERVICE
"AT TIMBER TREATING PLANTS"
Of poles, crossarms, and preservative treatments. Analysis of wood preservatives. Consultation and specification writing.
A. W. WILLIAMS INSPECTION CO., INC.
MOBILE, ALABAMA
New York • St. Louis • Portland
Inspectors stationed throughout the U.S.A.

ORDER FROM L. E. S. AND PAY LESS
LINEMEN'S CONSTRUCTION TOOLS
PROMPT DELIVERY FROM STOCK
Send for Bargain Stock List No. LT
LINE EQUIPMENT SALES
46 W. Harrison St. Chicago 5, Ill.

EXPANDET
SCREW ANCHORS
Vinyl Plastic • Best Device of Its Kind Available • Use with All Materials.
DANISH IMPORT
21566 Donaldson-Dearborn, Mich.

CREO & PENTA TREATED **POLES**
"from the Nation's Largest Plant"
DIERKS FORESTS, INC.
NA 3-7766 Hot Springs, Ark.

Neuses
CABLE SHEATH STRIPPER
N-2878 – With 3 blades **$7.80 each**
Slits plastic or fabric covered cable. Rigid Phenolic Handle. Stainless steel saddle holds guide and blade in place. Groove guides and supports cable.

CABLE SHEATH SLITTER
N-62267 – With 2 blades **$4.20 each**
Tough, sharp hook blade digs in through most heavy-duty and all sizes of cables. Guide controls depth of cut.

P. K. NEUSES, INC. IMMEDIATE DELIVERY
511-19 N. Dwyer St., Arlington Heights, Ill.

DIALS
Dial Haven Reconditioning Service provides expert workmanship plus genuine and improved parts to insure long life for your telephone dials.
DIAL HAVEN INC.
P.O. Box 655 Monroe, N. Y.
Code 914 783-2221

CABLE SPLICERS • LINEMEN
STATION INSTALLERS
STEADY WORK, GOOD PAY
MIDWEST LOCATION
The Weikel Line Company, Inc.
FORT WAYNE, IND.

QUALITY SERVICE PRICE

CABLE INVENTORY CLEARANCE AT LOWEST PRICES!!
Exchange Area Plastic Jacketed Cable For Aerial & Duct Red & Clear Conductors
Per REA Spec. PE-14
Representative Lengths Listed Only
202 Pair, 19 Gauge—1430, 1035, 1025, 1010, 855, 785, 715, 680, 613 & Others
SPECIAL PRICE .....$1,200.00/M Ft.
101 Pair, 19 Gauge—2210, 2000, 538, Etc.
16 Pair, 19 Gauge—4100, 2038, 1285, 1721, Etc.
152 Pair, 22 Gauge—1300, 1005, 1000, Etc.
101 Pair, 24 Gauge—2516, 1365, 956, 918, Etc.
11 Pair, 24 Gauge—2732, 2489, 1880, 1740, 1320, 1000, 975, 856, Etc.
Many other Lengths in ALL SIZES & GAUGES are available. CALL AXtel 7-4756 COLLECT for your SPECIAL LOW DELIVERED PRICE!!

NEOPRENE JACKETED TELEPHONE CABLE
5 Pair, 19 Gauge, Twisted Pairs, Solid Copper Conductors with Laytex Insulation. Color-Coded, Neoprene Jacketed. 1,250 Ft. Reels. ALL BRAND NEW CABLES — GUARANTEED . . . Subject to Prior Sale.
SPECIAL PRICE: $39.50/M FT. DELIVERED!
10 Pair, 19 Gauge, Neoprene Jacketed Cable, same as above in 500 Ft. Lengths.
SPECIAL PRICE.....$75.00/M FT. DELIVERED!
All Cable Priced LOW for Quick Clearance.
QUANTITY DISCOUNTS AVAILABLE

Tele-Wire
SUPPLY CO., INC.
178-10 Liberty Ave. Jamaica 33, N. Y.
CALL AXtel 7-4756 COLLECT!

POLES

B. J. Carney & Co., 100 N. 7th St., Minneapolis, Minn.—Western red cedar poles. Pentrex Butt Treated or Plain.

Cascade Pole Co., P.O. Box 743, Tacoma, Wash. — Creosoted Douglas Fir and Cedar Poles.

C. M. Christiansen Co. — Northern White Cedar Poles, Pentachlorophenol treated. Plant and Yards, Phelps, Wis.

Eppinger & Russell Co., 80—8th Avenue, New York 11, N. Y.—Creosoted Poles and Cross Arms. Plants: Jacksonville, Fla., Norfolk, Va., Eddington, Pa.

International Creosoting and Construction Co., Galveston, Texas.—Creosoted Southern Yellow Pine Poles. Plants Beaumont and Texarkana, Texas.

International Paper Co., Wood Preserving Division — 926 Grand Avenue, Kansas City, Missouri—"LONG-BELL" pressure-treated Southern Pine and Douglas Fir Poles—Creosote or Penta.

Piedmont Wood Preserving Company —Creosoted and Creosote-Penta Treated Pine Poles. Plant, Augusta, Georgia. Yards, Virginia, West Virginia and Connecticut. Address inquiries to Box 1662, Spartanburg, S. C.

Texas Creosoting Company—512 Main Street, Orange, Texas—Creosoted Southern Yellow Pine and Douglas Fir Poles. Can also treat with "Penta."

IT'S COLD OUTSIDE . . .
But the Climate is RIGHT
For Dealing at Telectric

We've bought till it "HURTS"—We *must* sell *NOW*
millions of dollars worth of *New* Phone Equipment & Pole Line Material at a fraction of its worth

Satisfaction guaranteed

What do you need right now? — quantity talks

Telectric Co.

1218 VENICE BOULEVARD LOS ANGELES 6
DDD 213 RI 8-2249

Index to ADVERTISERS

	Page
AC Spark Plug Div. of General Motors	29
Ace Tree Service	—
Acme Electric Corporation	—
Acme Visible Records, Inc.	—
Airtronics International Corp.	—
Alphaduct Wire & Cable Co., The	—
Altec Lansing Corp.	67
Aluminum Company of America	—
Aluminum Ladder Co.	—
Amchem Products, Inc.	57
American Electrical Heater Co.	—
American Steel & Wire Co.	—
American Telephone & Telegraph Co.	—
Anaconda Wire & Cable Co.	—
Andrew Corporation	—
Ansonia Wire & Cable Co., The	—
Arps Corporation	—
Arrow Fastener Co., Inc.	—
Automatic Electric Sales Corp.	40-41, 69
Baker Wood Division	—
Barber Advertising Specialties, Walt	—
Batlle & Co., Inc., Jos. A.	—
Bell Telephone Laboratories, Inc.	43
Benner-Nawman, Inc.	—
Berry & Co., L. M.	—
Bethlehem Steel Co.	—
Bohnsack Equipment Co.	—
Brady Co., W. H.	—
Brand, Wm.—Rex Div.	—
Buckeye Telephone & Supply Co.	71
Budelman Electronics Corp.	—
Burgess-Manning Company	—
B. Y. Dial Service	—
C&D Batteries, Inc.	—
Cabaniss-Pogue Co.	70
Cable Construction Co.	70
Cable Spinning Equipment Co.	—
Calculagraph Company	56
Canadian Marconi Co.	—
Carter Directory Co., Inc.	—
Chance Co., A. B.	—
Chevrolet Div. of General Motors	—
Cleveland Inst. of Electronics	35
Clifton Appraisal Co.	—
Collins Radio Co.	27
Colorado Fuel & Iron Co., The	—
Commercial Cord Company, Inc.	—
Communication Equipment & Engineering Co.	63
Cook Electric Company	65
Copperweld Steel Co.	53
Crane, Inc., Carl C.	70
Danish Import	73
Davis Construction Co.	—
Dial Haven, Inc.	73
Dierks Forests, Inc.	73
Donnelley & Sons, R. R.	—
Duo-Safety Ladder Corp.	63
Dupont de Nemours & Co., Inc., E. I.	—
E. & C. Contracting Co.	70
Electronic Secretary Ind., Inc.	14-15
Electronic Specialties Co.	—
Everstick Anchor Co.	—
Exide Industrial Div.	39
Fitchburg Engineering Corporation	—
Floor-Con	—
Ford Motor Co., The	21
Freeland, Frank	—
Gagne Enterprises, Inc.	60
General Cable Corporation	36-37
General Machine Products Co., Inc.	50
General Telephone Directory Co.	Back Cover
Gladwin Plastics, Inc.	—
Globe Electronics	—
Gould-National Batteries, Inc.	16
Graybar Electric Co.	6-7
Haley & Co., R. G.	—
Hallamore Electronics Co.	58
Hancock Mut. Life Ins. Co., John	72
Harris-McBurney Company	—
Heckendorn Mfg. Co.	60
Henkels & McCoy	70
Highway Trailer Company	—
Hirsch Organization, Inc., Gustav	—
Hitachi, Ltd.	47
Holan Corp.	25
Indiana Steel & Wire Co.	—
International Teletronics, Inc.	—
Irwin-Auger Bit Co.	—
ITT-Kellogg	8-9
Jet Line Products, Inc.	—
Johns-Manville	—
Justrite Mfg. Co.	—
Kato Engineering Co.	67
Kearney Co., Jas. R.	—
Kemode Mfg. Co.	—
Kennecott Wire & Cable Div.	—
Keystone Steel & Wire Co.	—
Killoren Company	70
Klein & Sons, Mathias	51
Kohler Co.	—
Koiled Kords, Inc.	—
Koppers Co., Inc. Wood Preserving Div.	—
Kwal Paints, Inc.	—
Kwik-Mix Co.	—
Leich Sales Corporation	10-11
Lenkurt Electric Co.	12-13
Lindsay Telephone Supply Co.	—
Line Equipment Sales	73
Lorain Products Corp., The	5
Lynch Communications Systems, Inc.	—
Magnolia Chemical Co., Inc.	52
Mast Directory Co., Leland	70
McCabe-Powers Body Company	—
McGrath Engineering, Inc.	70
Minnesota Mining & Mfg. Co.	—
Monsanto Chemical Co.	—
Morrison-Pelsue Co.	—
Natco Corporation	—
National Standard Co.	—
National Telephone Supply Co.	—
Neubauer Manufacturing Co.	—
Neuses, Inc., P. K.	72
Northeast Electronics Corp.	—
North Electric Company	75
Okonite Company, The	—
Onan Division, Studebaker-Packard Corp.	—
Orangeburg Mfg. Co.	—
Osborne Electronic Sales Corp.	—
Osmose Wood Preserving Co.	—
Owens-Illinois	—
Page & Hill, Inc.	—
Panhandle Electric Sales, Inc.	—
Petersen Engineering Co., Inc.	—
Phelps Dodge Copper Products Corp.	45
Philco Corporation Gov. & Ind. Div.	—
Plastic Wire & Cable Corp.	—
Plastimayd Corporation	—
Porter Co., Inc., H. K.	64
Precision Multiple Controls	50
Preformed Line Products Co.	22-23
Puregas Equipment Corp.	—
Railway Communications, Inc.	—
Ramset Fastening System	—
Raytheon Company	55
Recordak Corp.	—
Reichhold Chemicals, Inc.	—
Reliable Electric Company	68
Remington Rand Div.	—
Rolatape, Inc.	—
S & G Manufacturing Co.	—
Schauer Mfg. Co.	—
Seymour Smith & Son	—
Sherron Metallic Corp.	—
Sierra Electronics Corp.	—
Sloan, Cook & Lowe Co.	70
Stainless, Inc.	—
Stampings, Inc.	—
Sterile Telephone Corp.	—
Stewart Brothers	—
Stromberg-Carlson	2-3
Studebaker-Packard Corp.	—
Superior Cable Corporation	61
Suttle Equipment Corporation	54
Telectric Co.	73
T.E.I. Corp.	70
Telephone Repair & Supply Co.	—
Tele-Wire Supply Co., Inc.	73
Tele-Muff Co.	—
Teletype Corporation	—
Templeton, Kenly & Co.	—
Terado Company	—
Thornhill Publishing Co.	—
Transandean Associates, Inc.	—
Truck Equipment Company	59
Tudor & Yager, Inc.	70
Union Carbide Plastics Company	—
United Electric Controls Co.	—
U. S. Cable Constructors, Inc.	70
United States Independent Telephone Association	—
United States Instrument Corp.	62
United States Motors Corp.	—
United States Steel Corp. American Steel & Wire Co.	—
Universal Controls Corp.	—
Utilities Contracting Co.	70
Utility Equipment Co.	—
Utility Service Co., Inc.	66
Utility Tool & Body Co.	—
Vermeer Manufacturing Co.	—
Warren Mfg. Co., The	—
Weikel Line Company	73
Western Electric Co.	—
Whitney-Blake Co.	—
Williams Inspection Co., Inc., A. W.	73
Wilson Rubber Company	—
Winders & Geist, Inc.	—
Wiremold Co., The	—
Wyoming Valley Equipment Div.	—

WESTERN REPRESENTATIVE:

McDONALD-THOMPSON

625 Market St., San Francisco Cal.

3727 W. Sixth St., Los Angeles

620 Sherman St., Denver, Colo.

National Bldg., Seattle, Wash.

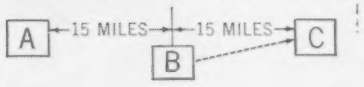
3217 Montrose Blvd. Houston, Tex.

2727 Oak Lawn Ave., Dallas 19, Tex.

2035 S. W. 58th Ave., Portland 1, Ore.

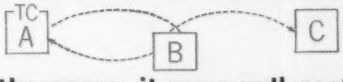
WHY CAN'T ALL TOLL BE PROFITABLE?

Prior to the development of the nationwide DDD plan, there arose an immediate need for automatic toll handling equipment. Short haul ticketing became an economic necessity.



For example, we have towns A, B and C. Town B is located 15 miles East of Town A. Town C is located another 15 miles East of Town B. Here, a subscriber in Town B, calling a number in Town C, is making a 15 mile toll call with, let us say, a 20¢ toll charge.

But, Town B is not a toll center—Town A is. Therefore, the call goes from B to A, back to B, then on to C,



tieing up 45 miles of circuit for a 15 mile call! Furthermore, it may well cost the Telephone Company 35¢ or more to handle this call! No businessman can stay in business long selling for 20¢ what costs him 35¢!

However, ticketing equipment that would handle this call automatically, bringing the handling cost below the selling cost, enables him to show a profit.

To engineer equipment of this type means not only functional engineering, it means also cost conscious engineering. If the equipment cannot be installed at an economical cost and operated economically, it cannot prove itself out profitably.

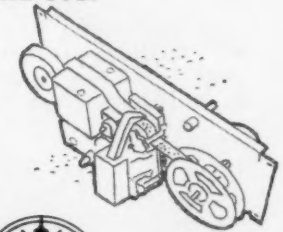
The first short haul ticketing equipment North built—and every piece of AuTollizer equipment since—was designed to fit the requirements of the Independent Operating Companies—budgetwise as well as functionally!

North Electric has, for over three quarters of a century, worked with and for the Independent Telephone Companies!

North AuTollizer® Equipment has always been built with the singleminded purpose of providing PROFITABLE equipment for the Operating Company.

That is why North AuTollizer equipment has proved itself over and over as the most efficient and most profitable automatic toll ticketing equipment available to the Independent Telephone Industry.

That is why progressive Independents continue to look to



THE DYNAMIC FORCE IN THE TELEPHONE INDUSTRY

NORTH ELECTRIC COMPANY

GALION, OHIO

NORTH

No. 2 in a series of factual presentations on North AuTollizer

Let our "Revenue Men" show you

THE MEANING OF DIRECTORY COOPERATION!

Take a man like

Arvel Phillips

Arvel is one of our "revenue men" in Herrin, Illinois.

He attended Southern Illinois University in Carbondale, and later served as principal of the elementary school in Benton, Illinois.

After a hitch in the Coast Guard from 1942 to 1945, Arvel returned home and began his career in sales.

It was in 1952 that he joined the General Telephone Directory Company as a sales representative in our Herrin Unit. In 1954, he was promoted to supervisor.

He, his wife and his 13-year-old son make their home right in Herrin. When Arvel is not working, he spends most of his time outdoors. His hobbies are baseball, golf, boating, hunting and fishing. He puts his sports knowledge to good use in his work with the Boy Scouts, home town boys' baseball teams and Church youth groups.

Arvel Phillips is a good example of the "revenue men" who work for General Telephone Directory Company and for you. Men who are an asset to any community in which they live.

You get more than extra sales when you put one of our "Revenue Men" to work on your directory.

His manners, his methods will be a positive credit to your company. He'll be welcomed by your advertisers.

He'll work together with you to produce a book you can be proud of. A directory with complete Yellow Pages service—showing the public where to go for all kinds of purchases, rentals and services. A directory with maximum accuracy, maximum revenue.

And you won't have a worry in the world. Selling, publishing and printing are all done to perfection as part of our Complete Directory Service Plan.

Want to know more about it? A phone call or letter to our nearest office will bring a representative on the double.

GENERAL TELEPHONE DIRECTORY COMPANY

1800 Oakton Boulevard
Des Plaines, Ill.
VAnderbilt 7-6111

DIVISION OFFICES:

Bloomington, Illinois • Columbia, Mo. • Durham, N.C. • Erie, Pa. Fort Wayne, Ind. • Honolulu, H.I. • Lexington, Ky. • Long Beach, Calif. Madison, Wis. • Manila, P.I. • Muskegon, Mich. • St. Paul, Minn. San Angelo, Tex. • San Francisco, Calif. • Spokane, Wash. St. Petersburg, Fla.